

RURAL INDUSTRIALISATION

A Study on Its Relation With Agricultural  
Growth in India

T.S. PAFOLA

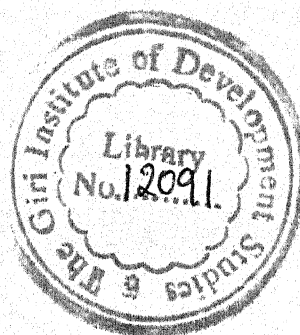
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T S PAPOLA

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RURAL INDUSTRIALIZATION : A STUDY ON ITS RELATION WITH  
AGRICULTURAL GROWTH IN INDIA

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I Introduction

Industrial activity consisting of a large variety of manufacturing and processing, has always constituted a significant part of rural scene in India. Estimates of the number of enterprises and workers engaged in these activities widely differ due to the differences in definitions, coverage and methodology of estimation. According to an estimate, non-agricultural employment constituted 20 per cent of the rural labour force in India<sup>1</sup>, and manufacturing contributed 38.7 per cent of the non-agricultural rural employment and 7.43 per cent of the total rural labour force in 1966-67. According to 1971 Census the number of workers in the rural household industries was 4.74 million.<sup>22</sup> By 1981, this number is recorded to have gone up to 5.94 million.<sup>3</sup> In between the Economic Census of 1977 put the figure of non-agricultural establishments in rural areas at 15.78 million.<sup>4</sup> A survey conducted by the National Sample Survey Organisation (NSSO) during 1974-75 estimated a total of 21.31 million workers in the non-agricultural establishments in rural areas, of which 11.56 million were working

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<sup>1</sup> Anderson Dennis and Mark Leiserson, Rural Enterprise and Non-Farm Employment : A World Bank Paper, Washington, 1978, pp 16-17.

<sup>2</sup> Census of India : General Economic Tables, 1971, Vol. I, Part II (B) (iii).

<sup>3</sup> Census of India : Paper 3 of 1981, Provisional Population Tables for Workers and Non-workers.

<sup>4</sup> Government of India, Central Statistical Organisation, Economic Census, 1977.



in 6.49 million establishments engaged in manufacturing activity.<sup>5</sup> According to this source, the rural areas contributed about 74 per cent of establishments and 71 per cent of workers in the manufacturing sector of the country. For 60 per cent of the rural industrial households, manufacturing was the primary and for the rest secondary source of income.

The number of workers employed in and the degree of their dependence on the rural industries is large enough to justify the concern with the problems of their development. It also seems clear that growth of agriculture per se is not likely to directly affect the employment and income levels of the majority of rural industrial workers and their dependents, as most of them are landless. At the same time, many of the rural industrial activities are observed to generate too low levels of productivity and growth to ensure a reasonable and rising level of living to those engaged in them. Activities that are found to have a relatively higher level of productivity and growth are mostly of the non-traditional kinds and are not necessarily in the hands of the landless and the poor.<sup>6</sup> The concern, therefore, has to be not merely with rural industrialisation as such but also its structure in relation to the different socio-economic strata of the rural population.

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<sup>5</sup> National Sample Survey Organisation : Self-Employment in Non-Agricultural Enterprises, NSS 29th Round, July 1974-June 1975.

<sup>6</sup> Papola, T.S. : Rural Industrialisation : Approaches and Potential, Bombay, Himalaya Publishing House, 1982.



An important question to examine in this context is of the relationship between agricultural growth and the level, structure and growth of industries in the rural areas. A backward agriculture may provide little scope for rapid enhancement of employment and income opportunities through rural industrialisation in so far as the structure of rural industrial activities is characterised by use of agricultural produce as raw material and production for the local agricultural use or rural consumption. A fast growing agriculture, on the other hand, may create necessary impetus for such industrialisation at a rapid pace, but the existing units may not be technologically and economically capable of meeting the new pattern of demand for inputs for agriculture and goods for consumption at higher levels of incomes. Yet, it is expected that agricultural growth would lead to a spurt in rural industrial activity by supplying more raw material, creating greater demand for inputs and allied services, raising consumption demand and generating surplus for investment. The distributive implications of these developments in terms of sharing of gains between the old and the new entrepreneurs, and the landless and the landed, could be highly uncertain.

An examination of these issues requires a study of the level, structure and functioning of rural industrial units in situations characterised by varying levels of development and growth rates of agriculture. This paper aims at such an examination at three levels. First, a comparison is made among the major States of India in respect of structure and performance of

rural industrial units, on the one hand, and certain indicators of agricultural situation and growth, on the other. Second, an exercise to relate the extent of employment in rural household industry with agricultural productivity is undertaken in respect of the 55 districts of Uttar Pradesh (U.P.), the most populous State of the country. And, lastly, a detailed investigation on the various quantitative and qualitative aspects of rural industrial units is carried out on the basis of a sample survey in two districts of U.P., one located in the agriculturally better developed and faster growing region in Western U.P., and the other located in the agriculturally less developed and slow growing Eastern U.P.

## II Structure and Performance of Rural Industries : Inter-State Comparisons

The National Sample Survey Organisation (NSSO) in its survey of Self-Employment in Non-agricultural Enterprises (NSS 29th Round) conducted during July 1974 - June 1975 estimated a total number of around 6.49 million enterprises and 11.56 million workers in the manufacturing activities in rural India, distributed over 21 States and Union Territory units and 29 industrial categories. For the purposes of the present analysis we have selected 17 major States accounting for over 99 per cent of enterprises and 10 major industrial categories found significant in most States and accounting for over 80 per cent of total enterprises (Table 1).

Table 1 : Structure of Industrial Activity in Rural Area : Major States  
(Major industries contributing at least 5% of enterprises in a number of States)

S T A T E S	INDUSTRIES														Total number of enterprises in all industry groups
	Food products	Edible-oil, Tea, Coffee	Beverages & Tobacco	Cotton Textiles	Textile products	Foot-wear	Wood products	Wood, Bamboo & cane furniture	Non-metallic mineral products	Machine, tools and parts	Total % by these groups				
Andhra Pradesh	5.58	2.35	9.48	13.63	19.36	5.73	14.94	3.21	8.25	2.25	84.78	769690			
Assam	7.35	4.31	0.76	6.34	19.51	-	10.14	21.00	3.55	0.25	73.21	27650			
Bihar	13.30	12.40	6.77	4.13	7.91	1.27	10.31	8.50	13.62	8.97	87.18	593987			
Gujarat	8.41	2.46	2.46	5.54	24.28	2.94	13.27	7.39	11.97	2.94	81.66	174000			
Haryana	8.76	1.21	0.60	4.74	18.02	7.24	12.06	8.04	16.48	8.24	85.39	74400			
Himachal Pradesh	33.97	1.33	-	2.67	13.10	7.33	14.43	3.77	1.78	5.77	84.15	54000			
Jammu & Kashmir	20.50	4.31	0.04	1.02	29.78	3.29	12.94	2.38	5.04	1.74	81.04	69078			
Karnataka	4.63	1.26	21.87	4.50	14.59	3.28	13.92	8.83	10.18	3.62	86.68	350320			
Kerala	5.86	2.93	10.19	2.99	30.01	0.31	15.07	10.00	1.34	0.18	78.88	488305			
Madhya Pradesh	3.54	6.11	20.77	2.67	11.86	9.04	11.31	6.11	8.78	7.67	87.86	378500			
Maharashtra	7.96	2.47	10.06	1.54	22.59	3.66	14.36	9.26	6.13	2.52	80.55	450771			
Orissa	6.84	18.12	5.10	18.91	5.44	-	10.44	6.96	12.34	0.50	84.65	301424			
Punjab	10.44	2.20	0.07	13.25	17.73	7.43	4.35	2.00	4.55	7.89	69.91	127075			
Rajasthan	6.36	3.12	0.24	6.19	15.08	9.90	13.14	7.01	14.90	2.65	81.68	280335			
Tamil Nadu	16.87	4.24	4.57	21.08	6.90	0.50	10.77	6.50	5.60	0.93	77.96	592605			
Uttar Pradesh	11.26	12.19	1.82	7.14	15.75	0.72	14.17	4.87	10.46	4.31	82.69	1046640			
West Bengal	20.63	5.54	17.28	12.83	7.01	0.11	10.37	4.97	4.40	1.78	78.74	650476			
Other States & Territories	-	-	-	-	-	-	-	-	-	-	-	63698			
INDIA												6492956			

SOURCE : National Sample Survey Organisation : Self-Employment in Non-Agricultural Enterprises, NSS 29th Round, July 1974 - June 1975.

Other significant industries, contributing more than 5% enterprises in a State are : Assam : repair of bicycles and rickshaws (7.86); Jammu & Kashmir : Woollen textiles (8.80), metal products (5.45); Kerala : Rubber products (8.48); Punjab : repair of machinery and tools (19.68); Rajasthan : repair of foot-wear and other leather goods (7.15).

### i) Structure of Industries

The ten industry groups selected for our analysis, viz., Food products, Edible-oil, Tea and Coffee, Beverages and Tobacco, Cotton textiles, Textile products, Footwear, Wood products, Wood, Bamboo and Cane furniture, Non-metallic mineral products, and Machinery, Machine tools and parts, together contributed around or over 80 per cent of enterprises in each State except Assam (73%), and Punjab (70%). The composition of enterprises by industrial categories is, however, found to differ significantly among States. The major industry groups which are found to have significant share in the rural manufacturing sector of all or most of the States are : Food products, Textile products, Wood products and Non-metallic mineral products. Their relative importance, in terms of the percentage of enterprises, no doubt varies significantly among States. Proportion of enterprises in Food products varies between 3.54 per cent in Madhya Pradesh and 33.97 per cent in Himachal Pradesh, and that of Textile products between 5.44 per cent in Orissa and 30 per cent in Kerala. Wood products enterprises account for 4.35 per cent in Punjab but between 10 to 15 per cent in all other States. Non-metallic Mineral Products have a share between 1.34 per cent in Kerala and 16.48 per cent in Haryana.

Among other industries, variations are still much more marked. Edible oil which generally contributes less than six per cent of units in most States, has a high proportion of 18 per cent in Orissa, and 12 per cent each in Bihar and Uttar Pradesh. Beverages have significantly large (10 to 22%) contribution in

the rural industrial structure of Madhya Pradesh and Karnataka, West Bengal, Kerala, and Maharashtra, while in other States their contribution is small, generally, less than five per cent. Cotton Textiles which mostly has a contribution of up to five or six per cent, account for about one-fifth of units in Tamil Nadu and Orissa and also a significantly high proportion in Andhra Pradesh and Punjab. Foot-wear accounts for less than five per cent units in most States but around 10 per cent units in Rajasthan and Madhya Pradesh. Wooden furniture is uniformly found in all States contributing 5 to 10 per cent units, but is more important with 21 per cent units in Assam and of little importance with just about two per cent units in Punjab and Jammu and Kashmir. Machinery units vary significantly in their contribution among the States, with less than one per cent units in Kerala, Assam, Orissa and Tamil Nadu and one to two per cent units in Jammu and Kashmir, West Bengal and Andhra Pradesh, but is important in Bihar, Punjab, Haryana and Madhya Pradesh with around eight per cent of units in each. In fact, in Punjab another 20 per cent of units are also found in repair of machinery and parts (not covered in the ten industry groups chosen for analysis here).

Thus, there is a large variety of patterns of rural industrial activity prevailing in different States. If one were, however, to pick up two or three major groups of industries identifiable as the base of rural industries in each State, then the following broad patterns would emerge:



1. Textiles and Agro-based Products (including food products and edible oil) - Jammu and Kashmir, Orissa, Uttar Pradesh, West Bengal, Tamil Nadu.
2. Textiles and Wood (including furniture) - Assam, Andhra Pradesh, Haryana, Gujarat, Kerala, Maharashtra.
3. Wood and Beverages - Karnataka, Madhya Pradesh.
4. Textiles and Leather - Rajasthan.
5. Textiles and Machinery (including implements and repair) - Punjab.
6. Food Products and Wood Products - Bihar, Himachal Pradesh

Textiles, including cotton textiles and textile products thus are the most ubiquitous products found in a significant way in practically all the States irrespective of the levels and structure of their economic and agricultural activity. Agro-based products including food and edible oil are the next most prevalent group of rural industrial activity, constituting around or over one-fourth of the total units in Bihar, Himachal Pradesh, Jammu and Kashmir, Orissa, Uttar Pradesh and West Bengal. Forest-based industries, wood products and wood, bamboo and cane furniture are also found significant in a number of States, contributing over 25 per cent of units in Assam and Kerala. Industries which stand out prominently in one State only include leather (foot-wear and repair) in Rajasthan and machinery (including repair) in Punjab.

#### ii) Employment, Technology and Output Levels

The size of units is found to be small in all the States, the average number of workers employed per unit ranges mostly between 1.50 to 2.00 in different States (Table 2). The lowest



Table 2 : Some Characteristics Relating to the Working of Rural Industrial Enterprises 1974-1975 : Major States

S T A T E S	Household Worker per enterprise (N)	HH workers with HHI as principal occupation (% to total HH workers in HHI)	Hired workers per enterprise (N)	Total workers per enterprise (N)	Fixed capital (Assets) per enterprise (Rs.)	Enterprises using power (%)	Annual output per enterprise (Rs.)	Annual value added per enterprise (Rs.)	Annual charged labour (Rs.)	Annual Net income per enterprise (Rs.)	Annual output per worker (Rs.)	Annual value added per worker (Rs.)	Annual net income per HH worker (Rs.)
Andhra Pradesh	1.80	69	0.16	1.96	664	5.16	2088	1391	67	1324	1065	710	736
Assam	1.52	79	0.11	1.63	1402	3.54	3877	2097	159	1870	2379	1287	1231
Bihar	1.58	61	0.05	1.63	871	1.64	1787	1302	65	1237	1096	799	783
Gujarat	1.58	80	0.09	1.67	1927	9.31	2831	2003	153	1850	1695	1199	1171
Haryana	1.47	78	0.08	1.55	1749	8.06	2327	1699	94	1605	1501	1096	1092
Himachal Pradesh	2.00	52	0.05	2.05	1656	3.78	1732	1405	82	1323	845	685	662
Jammu & Kashmir	1.36	51	0.07	1.43	1515	17.45	2218	1416	101	1315	1551	990	967
Karnataka	1.61	81	0.06	1.67	1014	4.06	1736	1166	55	1111	1040	698	690
Kerala	1.70	79	0.28	1.98	509	2.00	3352	1983	232	1751	1693	1002	1030
Madhya Pradesh	1.53	59	0.02	1.55	619	3.40	1194	952	22	930	770	614	608
Maharashtra	1.46	75	0.14	1.60	1312	5.98	2469	1509	137	1372	1543	943	940
Orissa	1.81	62	0.03	1.84	444	1.24	1608	872	26	846	874	474	467
Punjab	1.39	81	0.06	1.45	1840	9.10	2794	1949	109	1840	1927	1344	1324
Rajasthan	1.56	59	0.02	1.58	1479	4.06	2134	1515	33	1482	1351	959	950
Tamil Nadu	1.79	83	0.30	2.09	931	22.11	3790	2453	183	2270	1813	1174	1268
Uttar Pradesh	1.56	69	0.11	1.67	1323	6.61	2936	1758	139	1619	1758	1053	1038
West Bengal	1.82	68	0.14	1.96	773	1.80	3768	1579	169	1410	1922	797	775

SOURCE : As in Table 1.

average is found in Jammu and Kashmir (1.43) and Punjab (1.45) and the highest in Tamil Nadu (2.09) and Himachal Pradesh (2.05). Household workers overwhelmingly dominate the employment structure, constituting over 95 per cent of the total workers in most States. Units in Tamil Nadu and Kerala employ a relatively high proportion (14%) of hired workers. Besides, those in Maharashtra, Andhra Pradesh, West Bengal and Uttar Pradesh also have higher than average proportion of hired workers. Rural industrial units in Rajasthan, Orissa, Bihar, Himachal Pradesh and Karnataka, on the other hand, use insignificantly small number of hired workers. It is also seen that around two-thirds of the household workers engaged in rural industrial activity are principally dependent on it. The proportion of such workers is over four-fifths in Gujarat, Karnataka, Punjab and Tamil Nadu, but is lowest, around 50 per cent, in Himachal Pradesh and Jammu and Kashmir.

Technologically, rural industries in all States are found to rely mainly on manual operations. Use of mechanical devices is rather limited as is suggested by the small magnitude of fixed capital used. Use of power is also limited in most States. A relatively high value of fixed assets (between Rs.1500 to Rs.2000) per unit is observed in Gujarat, Punjab, Haryana, Himachal Pradesh and Jammu and Kashmir. Units in Andhra Pradesh, Bihar, Kerala, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal have an average fixed capital of less than Rs.1000, the lowest being in Orissa (Rs.444). In rest of the States the figure is between Rs.1000 and Rs.1500. Use of electric power

is found most prevalent among units in Tamil Nadu and Jammu and Kashmir, the percentage of units using power being 22 and 17 per cent respectively in these States. In Gujarat, Haryana, Uttar Pradesh, Maharashtra and Andhra Pradesh, the proportion of such units is between 5 and 10 per cent, but it is very low at one per cent in Orissa and around two per cent in Bihar, West Bengal and Kerala.

Use of machinery and power, seems to improve the performance of rural industries though it does not bear a consistent relationship with the average performance of units in different States. Assam, with a relatively low fixed capital per unit, very little extent of use of power and also with relatively smaller employment per unit, has the highest value of output (Rs.3877) per enterprise. It is followed by Tamil Nadu (Rs.3790) which of course, has a relatively large proportion of units using power though with very small fixed capital per unit, and also has the highest average number of workers per enterprise. The third place in average size of output per unit is taken by Kerala (Rs.3352) with very low capital base per unit and little use of power but relatively larger size of employment per unit. The next two States in order of output per unit are Uttar Pradesh and Gujarat. They have similar, above average, size of employment per unit and relatively high proportion of units using power, but the former has above the all-States average of fixed capital and the latter the highest fixed capital per unit, among all the States. The lowest size of units in terms of average

output obtains in Madhya Pradesh (Rs.1194), where the number of workers and fixed capital per unit as well as use of power by units are among the lowest. Orissa, Himachal Pradesh, Karnataka and Bihar have an average output size per unit in the range of Rs.1600-1800, but among themselves they have significant differences in terms of other variables.

Value added per unit follows similar order as of output among States. But there are significant differences in the ratio of value added to output. This ratio is very high (80%) in Himachal Pradesh and Madhya Pradesh, between 70 to 75 per cent in Bihar, Gujarat, Haryana, Punjab and Rajasthan; between 60 to 70 per cent in Andhra Pradesh, Jammu and Kashmir, Karnataka, Maharashtra, Tamil Nadu and Uttar Pradesh; but is between 50 and 55 per cent in Assam, Kerala and Orissa and is very low at 42 per cent in West Bengal.

Assuming that these enterprises are mostly carried out on a household basis and income from them accrues to the households, the net income from enterprises could be considered as its contribution to household income. It is also safe to assume that this contribution constitutes a major part of the total household income as most workers of the industrial household are found to carry out these activities as their principal occupation. From this point of view, the figures of net income per enterprise could be assessed for their adequacy for a reasonable level of living. Taking a figure of Rs.2400 per household (at

1974-75 prices) as the 'poverty line' cut-off<sup>7</sup> and assuming two-thirds of the household income from industrial activity on an average, enterprises in Assam, Gujarat, Punjab and Tamil Nadu are found, on an average, to generate a reasonable level of income; and those in Kerala, Uttar Pradesh and Haryana fall short of this level by a small margin, i.e. up to 11 per cent. But those in Madhya Pradesh and Orissa generate as low an income as would meet the 'poverty line' cut-off by only 50 per cent.

### iii) Productivity and Earnings

Labour productivity more or less follows the order of output per enterprise across the States as the differences in employment size are not large. Assam tops in output per worker with a figure of Rs.2379; in Punjab, West Bengal, Tamil Nadu, Uttar Pradesh, Gujarat, Kerala, Jammu and Kashmir and Maharashtra a worker engaged in rural industrial enterprises produces, on an average, output worth Rs.1500 to Rs.2000 annually. But units in Madhya Pradesh, Orissa and Himachal Pradesh yield output per worker of less than Rs.1000. The order of States by value added per worker is somewhat different due to the varying value-added-to-output ratio. Here, Punjab comes on top with a figure of Rs.1344, followed by Assam, Gujarat, Tamil Nadu, Haryana, Uttar Pradesh and Kerala each with a figure above Rs.1000. The

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<sup>7</sup> Poverty line refers to the level of consumption expenditure incurred by a rural household which is found to fulfil food requirements of its members at the level of 2400 calories per person per day. This concept of poverty line is based by the Indian Planning Commission and other official agencies for the estimation of poverty as well as for implementation of certain anti-poverty programmes. The level of household expenditure at the poverty line was estimated to be Rs.3500 per annum at 1978-79 prices.



lowest value added per worker is evidenced in Orissa (Rs.474) followed by Madhya Pradesh, Himachal Pradesh and Karnataka each with a figure between Rs.600 and Rs.700.

Net income per household worker could again be seen as a measure of adequacy of household income from industrial activity to meet a minimum level of living. Again taking Rs.2400 as the minimum household income in 1974-75 and assuming two workers per household, an income of Rs.1200 per worker could be considered as meeting the poverty line cut-off. From this viewpoint an average industrial unit in Punjab and Tamil Nadu, Assam and Gujarat is found to be doing quite well; one in Haryana, Uttar Pradesh, Rajasthan, Jammu and Kashmir, Kerala and Maharashtra meets the criterion marginally; but those in Orissa, Madhya Pradesh, Himachal Pradesh, Jammu and Kashmir and Karnataka fall short of the criterion by a margin of 30 to 40 per cent.

Thus on the whole, the rural industrial units in Assam, Punjab, Gujarat, Tamil Nadu, Haryana and Uttar Pradesh are found to be performing reasonably well on the basis of various indicators; those in Jammu and Kashmir, Kerala, Maharashtra, and Rajasthan are managing to get a living for those engaged in them. But in rest of the States, they seem to be merely absorbing people at sub-marginal levels of productivity and living. These differences do not seem to be necessarily related with a pattern of goods the units in different States are producing. A few distinct features are, of course, noticeable in the case of States with relatively better performance. Punjab, for example,



has almost one-third of its rural industrial units engaged in the manufacture and repair of (mostly agricultural) machinery, tools and parts, which together with those in textiles constitute over 50 per cent of all industrial units. These groups of industries with their composition as exists in Punjab could be considered 'dynamic' in terms of their demand. Assam, the other State with relatively good performance has again almost one-third of its units in the forest-based industries - wood products and furniture; textile products contributing another 20 per cent. Tamil Nadu is observed to have a thriving activity in the rural areas in the form of cotton spinning and weaving, another of its major rural industry food products also seems to be doing well. But a combination of agro-based and textile-based industries as dominant contributors do not seem to have produced similarly good results in Orissa, Jammu and Kashmir and West Bengal. And Bihar and Himachal Pradesh, among the poorest performers have a combination of agro-based and forest-based industries dominating their structure. Madhya Pradesh with a performance better only than Orissa, and Karnataka with only slightly better situation, both have beverages and wood-based industries as their major rural industries.

#### iv) Relationship with Agriculture

Similar industries thus seem to be doing differently in different States. The reasons for differential performance of the rural industrial activity among the States, therefore, seem, to a large extent, to be region-specific. And it is in this context that the situation of agriculture in different States may

be considered as a relevant factor. We, therefore, now turn to the relationship between the levels and growth of agricultural activity (Table 3) and the extent and performance of rural industrial activity among different States.

Table 3 : Some Indicators of Agricultural Situation in States of India (Average for 1973-74 to 1975-76)

S T A T E S	Relative Share in Production				Yield Levels (Kg./ha)			% of area in non-food crops
	Total foodgrains	Oil-seeds	Cotton	Sugar-cane	Total food-grains	Sugar-cane	Cotton	
Andhra Pradesh	8.4	15.7	5.6	8.2	964	6552	198	26.5
Assam	2.1	0.9	-	1.1	943	3752	-	76.2
Bihar	7.7	1.2	-	3.6	850	3952	-	10.3
Gujarat	3.3	14.8	24.7	1.4	564	4900	155	55.8
Haryana	3.8	1.0	7.0	4.4	1200	3662	293	22.6
Himachal Pradesh	0.9	0.1	-	-	1277	-	-	8.8
Jammu & Kashmir	0.9	0.4	-	-	1268	-	-	16.1
Karnataka	6.1	7.7	10.7	6.3	892	6955	126	32.7
Kerala	1.2	0.3	0.2	0.5	1458	-	-	70.9
Madhya Pradesh	10.1	7.6	4.4	1.4	605	2478	116	18.0
Maharashtra	7.4	7.2	18.1	12.3	581	10006	117	29.1
Orissa	4.5	2.8	-	1.0	663	6250	-	19.3
Punjab	7.5	3.1	18.4	4.1	2012	5000	378	28.3
Rajasthan	6.0	4.5	5.3	1.5	426	4230	215	78.9
Tamil Nadu	6.1	12.5	5.2	11.6	1089	9180	187	33.9
Uttar Pradesh	15.7	19.5	0.5	41.2	1007	4122	117	17.4
West Bengal	7.1	0.8	-	1.2	1182	5800	-	24.4
Others	1.2	0.1	0.1	0.4	-	-	-	-
INDIA	100.0	100.0	100.0	100.0	943	5087	161	26.2

SOURCE : Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, New Delhi, Indian Agriculture in Brief, 1982.

There is, no doubt, that the relative size of the agricultural sector and extent of the rural industrial activity go together simply due to the size effect. Thus Uttar Pradesh the largest producer of foodgrains as well as major commercial crops viz., sugarcane and oilseeds has the largest number of rural industrial enterprises in any State. Similar is the case of large States like Andhra Pradesh, Bihar and Tamil Nadu. But Punjab and Madhya Pradesh with large agricultural production have relatively smaller rural industrial sector. Orissa and Assam with relatively small agricultural production also have a relatively small rural industrial sector, but West Bengal, Gujarat and Kerala with low ranks among States in agricultural production are relatively much better placed in terms of the number of industrial enterprises in rural areas.

Relationship between agricultural productivity, measured in terms of yield per hectare in the production of foodgrains, the most important group of crops and value added per worker, in rural industries is also found rather mixed. No doubt, Punjab, Haryana, Tamil Nadu and Uttar Pradesh have a relatively high agricultural productivity as well as value added per worker in rural industries; and, Bihar, Karnataka, Maharashtra and Orissa are near the bottom of the list in both respects. But Assam and Gujarat with low agricultural productivity rank second and third respectively in respect of value added per worker in rural industries; Kerala with high agricultural yield ranks rather low in rural industrial activity. It may be pointed out that all these three cases stand out from the rest in respect of

cropping pattern in so far as the area under non-food crops accounts for as much as 76 per cent of cultivated area in Assam, 56 per cent in Gujarat and 71 per cent in Kerala, as against an all-India average of 26 per cent. Rajasthan, another State with a high extent (79%) of the area under non-food crops, also presents an odd case in so far as with lowest productivity in foodgrains, it has a middle order place in the productivity of rural industrial workers. With these understandable exceptions apart, there appears to be a reasonably good positive relationship between productivity levels in agriculture and rural industry among different States. The coefficient of rank correlation between yield levels in foodgrains and value added per rural industrial worker worked out to be  $+0.2625$  when all 17 States were considered, but once the odd cases of Assam, Gujarat, Kerala and Rajasthan were excluded the coefficient ( $+0.7309$ ) turned out to be significant at 1 per cent level. 12091

The income generating capacity of the rural industries, expressed in terms of value added per worker is found to be very closely associated with growth rates of agricultural production. Derived from a logarithmic function, after assigning weights to crops according to their percentage share in the total value of crop output, growth rates varied between 5.57 per cent in Punjab and 1.40 per cent in Madhya Pradesh during the period 1952/3-1978/79. The long run growth rate is used here because the relationship between agricultural growth and rural industrial activity is expected to materialise only in a relatively long

period of time. Growth rates of agricultural output and figures of value added per worker in the rural industries in the 15 major States are given in Table 4.

Table 4 : Growth Rates of Agricultural Output (1952/3-1978/9) and Value Added Per Worker in Rural Industrial Enterprises (1974-75) of 15 Major States of India

S T A T E S	Annual Growth rate of agricultural output (%)	Rank	Value added per worker in rural industries (Rs./annum)	Rank
Andhra Pradesh	2.21	13	710	12
Assam	1.66	15	1287	2
Bihar	2.02	12	799	10
Gujarat	3.30	3	1199	3
Haryana	4.75	2	1096	5
Karnataka	3.11	5	698	13
Kerala	2.65	9	1002	7
Madhya Pradesh	1.40	14	614	14
Maharashtra	1.48	8	943	9
Orissa	2.64	10	474	15
Punjab	5.57	1	1344	1
Rajasthan	2.91	4	959	8
Tamil Nadu	2.63	6	1174	4
Uttar Pradesh	2.57	7	1053	6
West Bengal	2.41	11	797	12

Source : Growth rates of agricultural output have been taken from Jose, A.V. 'Growth and Fluctuations in Indian Agriculture : 1952/53 to 1978/79' (Draft) ILO/ARTEP, April 1982, Table 3, p.8; and ranks for value added per worker in rural industries computed from the figures in Table 2.



A close relationship between agricultural growth and performance of rural industries across the States could be easily seen from the similarity of ranks order of the States in respect of the two variables. The top rank and the bottom rank are held by Punjab and Madhya Pradesh in both cases. Gujarat, Haryana and Tamil Nadu find themselves among the next five from the top, in both lists. Uttar Pradesh, Maharashtra and Kerala have middle order ranks in both respects. And Andhra Pradesh, Bihar, Orissa, and West Bengal feature in the bottom third of both the lists. Assam and Karnataka represent the two assymetrical cases, the former being the lowest among the 15 States included here, in agricultural growth stands second in productivity in rural industries; and latter with a relatively high agricultural growth is almost at the bottom of the list in respect of industrial productivity in rural areas. Rajasthan with relatively high agricultural growth and somewhat lower rank in value added in rural industries presents but a less striking exception. The coefficient of correlation between rank orders of States by growth rates in agriculture and value added per rural industrial worker stood at  $+0.4661$ , when all the 15 States were considered, but after excluding the oddest case of Assam, the relationship ( $r = +0.7143$ ) turned out to be much stronger and significant at 1 per cent level.

#### v) Conclusion

Let us now summarise and conclude the account of the level, structure and performance of rural industrial units and their



relationship with the level and growth of agricultural sector in different States. All kinds of industries are found in rural areas of practically every State; but shares of different industries vary significantly among them. It is very difficult to find an explanation of these variations in the differences in the regional resource base or demand patterns. No doubt, there is always food processing activity in a region that produces foodgrains and, therefore, food products are found to constitute a significant component of rural industrial structure in most States. But this activity is found to have much higher share in West Bengal and Tamil Nadu than in Punjab and Haryana, the agriculturally more prosperous States. In spite of a high share in production of oilseeds, the States like Andhra Pradesh, Gujarat, Tamil Nadu and Karnataka, enterprises producing edible oil constitute a very small proportion in their rural industrial activity. Textiles are found to be the most ubiquitous activity contributing 20 to 30 per cent enterprises in almost all the States. But weaving and spinning of textiles are less important in Gujarat, Maharashtra and Karnataka, the major cotton producing States than in Tamil Nadu, Orissa, and Andhra Pradesh. Punjab is the only State with significantly large share both in cotton production and cotton textile activity in the rural areas.

Wood products and furniture is again found to a significant extent in most States. All States have forest area of smaller and larger extent and rural areas everywhere use wood for timber,

tools and implements, and furniture for their production and consumption needs. Assam and Kerala have a relatively higher specialisation in the forest-based rural industries due particularly to the large proportion of area under forest in these States. But at the same time, Orissa and Madhya Pradesh with much larger proportion of area under forests do not have similar specialisation in the forest-based industries. Some exceptional cases of a large proportion of a single group of products in some States, however, seem more closely related with the regional endowment and demand pattern. But such cases are a few : foot-wear and leather in Rajasthan and Madhya Pradesh which have a large cattle population; and machinery and machine tools, particularly relating to agriculture, in Punjab and Haryana, agriculturally most developed States.

Thus it looks that the major part of the rural industrial activity in different States has continued mainly as a part of the tradition without necessarily being differentiated on the basis of linkages and integration with the local resource and changing demand patterns. That probably is one important reason as to why the most rural industrial enterprises are carried out as means of family subsistence rather than business; use primarily unpaid household labour; and have very small size of production and low productivity and income per worker engaged in them.

The performance of rural industrial enterprises differs significantly among the States. The difference seems related to some

extent with certain technological variables such as use of machinery and power. Units in some of the States with high value added per worker such as, Tamil Nadu, Gujarat, Haryana and Punjab use electric power to a significant extent and Gujarat, Haryana and Punjab also have a relatively high value of fixed capital per unit. Madhya Pradesh and Orissa, the States with lowest value added per worker also have very small amount of capital per unit and a very small percentage of units using electricity. Thus, even though the relationship is not consistent across all the States, evidence in respect of most States suggests that technology is quite closely associated with the relative performance of rural industrial enterprises in different States.

The association of agriculture as supplier of raw material and user of the products of rural industrial units, as input with the structure of rural industries is not observed with consistency. But the level of agricultural development in a State, measured in terms of yield per hectare, seems to affect positively the performance of rural industries. Yield per hectare in production of foodgrains is generally associated with value added per worker in rural enterprises. The causal process involved in such association is not very clear : the raw material argument seems plausible only to a limited extent, looking at the structure of industries; and, therefore, one has to look to the demand-inducing effect of higher productivity of rural industries. Direct demand for the manufacture and repair of agri-

cultural implements is one route which seem to work in Punjab and Haryana. Higher demand for timber, bricks and furniture for improvement in housing and living conditions with a rise in income levels is another mechanism which seem to be at work in Haryana, Gujarat, and Uttar Pradesh. But a more general impact through rise in income, technological possibilities, infrastructure facilities and links with urban areas accompanying agricultural development, seem to be contributing to better performance of rural industries in agriculturally better developed States.

Thus, it is the general development of the area accompanying fast agricultural growth, rather than mere local raw material supply and local demand as such that seems important for improvement in productivity of rural industries. The relationship is, therefore, better seen in a dynamic perspective; and in this context it is significant to note that performance of rural industrial enterprises in different States in the middle of 1970s, is found to be closely related with the rate at which agricultural growth had been taking place during the period from 1950s to 1970s. It must be noted that faster agricultural growth may not necessarily lead to a larger industrial sector in rural areas in terms of number of enterprises and workers in them, but it is certainly likely to improve productivity of enterprises and workers as are engaged in them. It would also involve adjustments in size, technology, product pattern and mode of production, and there may also occur replacement of old units by

new as well as change in the class of entrepreneurs, but the employment in rural industries would be more effective in terms of productivity and incomes, in a fast growing agricultural situation than in slow growing and stagnant one. Examination of some of these and related issues has been attempted in Section IV of the paper, on the basis of primary data from rural industrial units in an agriculturally developed and another relatively backward area in the State of Uttar Pradesh. Before that, however, a brief account of the agricultural and rural industrial situation in different regions and districts of Uttar Pradesh is given in Section III.

### III Agricultural Development and Rural Industries : Inter-Regional and Inter-District Situation in Uttar Pradesh

Uttar Pradesh is the most populous State of India accounting for about 16 per cent of its population. According to the NSSO Survey of 1974-75, it accounted for 16 per cent of the rural industrial enterprises in the country. The share of Uttar Pradesh in foodgrains production of India was 15.7 per cent, in oilseeds 19.5 per cent and in sugarcane 41.2 per cent around the middle of 1970s. About 17 per cent of its cultivated area was under crops other than foodgrains, as against 26 per cent for the country as a whole. Per hectare yield in the State was 1007 kilograms in foodgrains and 4122 Kg. in sugarcane, the all-India averages being 943 Kg. and 5087 Kg. respectively.

Rural industrial activity in the State is well diversified. According to the 1974-75 NSSO Survey, textile products constitu-



ted the single largest product group with 16 per cent enterprises, followed by wood products (14%), edible-oil (12%), food products (11%), non-metallic mineral products (10%). (See Table 1). Other significant products were cotton textiles, wooden furniture and machinery. Beverages and footwear also had a small share. Rural industrial units were found to be operating mainly on the basis of household labour, hired labour was only to the extent of around seven per cent of total workers (See Table 2). Of the household workers 69 per cent carried out the industrial activity as their principal occupation. Enterprises were small employing only 1.67 workers, on an average, using fixed capital of Rs.1323. Around seven per cent of them used electric power for their operations. A unit, on an average, produced output worth Rs.2936 annually and generated value added of Rs.1758. Per worker output estimated to Rs.1758 and value added Rs.1053. Considering only household labour and deducting wages of hired labour from the value added, an unpaid family worker was found to be earning Rs.1038 per annum from the industrial activity.

According to the 1981 Census, of the total main workers in the rural areas around 2.50 per cent were enumerated as engaged in household industry, which accounts for about three-fourths of total rural industrial employment. Data, however, are not yet available for the non-household segment of rural industry. The situation varied among the five economic regions, namely, Western, Central, Hills, Eastern and Bundelkhand, ranking in the descending order in general and agricultural development and, of course,

the variations were wide among the 55 districts of the State, as can be seen from figures in Table 5. Eastern Uttar Pradesh

Table 5 : Districts of Uttar Pradesh

Districts	1981	1981-82		
	% of Main workers in household industry (Rural)	Average Yield in Main Crops (100 Kg./ha)		
		Rice	Wheat	Sugarcane
1	2	3	4	5
1. Allahabad	5.38	12.21	18.50	440.04
2. Azamgarh	4.03	8.50	13.20	305.10
3. Bahraich	0.84	9.50	13.75	450.80
4. Ballia	2.49	8.25	13.90	400.10
5. Basti	2.36	9.25	13.80	405.25
6. Deoria	1.95	8.75	13.50	390.70
7. Faizabad	2.79	10.11	14.57	435.07
8. Gonda	1.14	9.70	13.80	410.80
9. Ghazipur	3.71	9.20	12.30	320.80
10. Gorakhpur	1.84	12.51	14.97	470.08
11. Jaunpur	4.57	10.50	14.50	450.80
12. Mirzapur	6.55	9.70	13.15	380.20
13. Pratapgarh	2.58	10.25	16.81	350.12
14. Sultanpur	2.68	10.50	15.90	370.75
15. Varanasi	12.22	10.00	15.02	440.25
<u>EASTERN U.P.</u>	<u>3.66</u>	<u>10.15</u>	<u>15.75</u>	<u>435.49</u>
16. Barabanki	3.12	11.20	15.10	490.20
17. Fatepur	2.12	11.20	15.90	380.50
18. Hardoi	1.20	10.50	15.50	450.10
19. Kanpur	2.00	9.75	13.80	390.70
20. Lucknow	1.25	10.87	14.95	420.25
21. Rae Bareli	1.79	11.50	15.20	430.70
22. Sitapur	2.00	11.20	15.50	450.27
23. Unnao	1.78	11.00	14.70	425.00
24. Kheri	0.78	12.00	15.50	461.25
<u>CENTRAL U.P.</u>	<u>1.81</u>	<u>11.02</u>	<u>15.12</u>	<u>433.22</u>
25. Banda	1.77	5.10	10.20	250.25
26. Hamirpur	2.98	6.20	12.75	340.20
27. Jalaun	1.46	6.50	13.15	360.25
28. Jhansi	2.90	5.75	11.50	330.75
29. Lalitpur	2.07	4.90	10.10	270.05
<u>BUNDELKHAND</u>	<u>2.20</u>	<u>5.83</u>	<u>11.64</u>	<u>328.47</u>

Contd.....

28  
Table 5 (contd.)

1	2	3	4	5
30. Almora	1.37	9.71	12.80	-
31. Pithoragarh	1.37	8.08	11.50	-
32. Dehradun	1.20	13.50	12.50	493.22
33. Garhwal	0.91	8.50	10.28	-
34. Chamoli	1.73	8.30	9.50	-
35. Nainital	1.53	12.80	20.20	492.90
36. Tehri	1.69	9.50	9.75	-
37. Uttarkashi	0.99	8.00	9.00	-
<u>HILLS</u>	<u>1.26</u>	<u>10.50</u>	<u>13.61</u>	<u>493.06</u>
38. Agra	3.36	7.80	16.02	387.80
39. Aligarh	3.18	7.90	16.50	390.20
40. Bijnor	7.72	11.90	20.75	500.02
41. Badaun	1.19	13.60	17.50	450.25
42. Bareilly	1.25	14.50	17.20	475.20
43. Bulandshahr	3.00	12.70	23.10	510.15
44. Etah	1.58	8.50	18.50	405.25
45. Etawah	1.39	12.70	21.20	460.70
46. Farrukhabad	2.19	8.90	19.80	421.25
47. Mainpuri	1.18	8.80	19.90	425.15
48. Mathura	3.31	8.10	17.50	390.71
49. Meerut	4.75	14.71	23.10	510.20
50. Moradabad	2.82	12.20	18.40	470.20
51. Muzaffarnagar	3.58	14.05	22.90	520.05
52. Rampur	1.07	13.10	19.70	480.27
53. Pilibhit	1.37	12.90	18.50	460.37
54. Shahjahanpur	1.13	12.50	19.00	490.25
55. Shaharanpur	2.61	13.50	22.50	495.05
<u>WESTERN U.P.</u>	<u>2.44</u>	<u>11.69</u>	<u>19.32</u>	<u>455.12</u>
UTTAR PRADESH	2.48			

Source : Census of India 1981, Paper No.1 of Uttar Pradesh; Agricultural Statistics of U.P., Director (Agriculture Statistics), Government of U.P.

had the highest proportion, 3.66 per cent, of household industry workers in the total rural employment, followed by Western U.P. with 2.44 per cent, Bundelkhand with 2.20 per cent, Central U.P. with 1.81 per cent and Hill region with 1.26 per cent. These figures do not conform with the regional characteristics

of agricultural development : yield levels were found to be the highest in rice, wheat as well as sugarcane, in Western U.P., followed by Central, Hill, Eastern and Bundelkhand region in that order. Within each region, the district-wise variations in the proportion of rural workers in household industries were significant, but again they showed no consistent relationship with inter-district variations in agricultural development. Among the districts of Western U.P., the highest extent of household industry workers in rural areas was found in Bijnor district (7.72%) followed by Meerut (4.75%), and the lowest in Rampur (1.07%), Shahjahanpur (1.13%), Badaun (1.19%) and Bareilly (1.25%). All these five districts had above average yield levels in rice and wheat as well as in sugarcane. Some districts with low yield levels such as Agra, Aligarh, and Mathura had a higher than average extent of household industrial workers.

The percentage of rural workers in household industry is high in Eastern U.P. partly on account of a very high figure (12.22%) in a single district, Varanasi, but quite a few other districts namely, Allahabad, Azamgarh, Ghazipur, Jaunpur and Mirzapur also have a relatively high figure. The proportion is very low only in Bahraich (0.84%) and Gonda (1.14%); other districts have a figure of around or higher than two per cent. Thus the extent and spread of rural household industry certainly appears to be higher in the Eastern than the Western U.P. The inter-district variations in the Eastern U.P. seem much more related



first with degree of urbanization and second with the local tradition of artisan activity, rather than with the relative levels of agricultural development.

In Central U.P. also similar pattern is visible. In Bundelkhand a predominantly dry farming area, the proportion of rural workers in household industry is more or less similar in different districts and the level of agricultural development is low and varies little among districts. The Hill region has relatively better levels of agricultural productivity than the Eastern and Bundelkhand regions, due particularly of a very high level of yield in all crops in a single district, Nainital, a large area of which lies in the fertile plains. Rural industrial activity has a small extent in each district including Nainital.

Thus, the inter-regional and inter-district comparisons within the State of Uttar Pradesh suggest hardly any relationship between agricultural development and rural industrial activity. Generally, it seems that the rural industries have continued in different areas as a matter of tradition; in the agriculturally less developed regions the traditional artisan-based activity absorbs a significant proportion of rural workers, but agricultural growth does not seem to have generated any significant degree of expansion in the old or emergence of new industrial activities in the rural areas. There is, however, limited evidence of a positive relationship between agricultural productivity and a much higher than average extent of rural household industry in the case of some of the most developed districts like Meerut, Muzaffarnagar and Bijnor in the Western region.



IV - Rural Industries in Fast and Slow Growing Agricultural Areas : A Sample Study From the Western and Eastern Uttar Pradesh

It is, however, plausible to hypothesise that more than the magnitude, it may be the performance of the rural industrial units, particularly in terms of per enterprise, and per worker productivity, that is positively influenced by rapid agricultural growth. And with such changes in productivity one may also expect certain other aspects like technology, size of enterprise, use of hired labour and product-mix, to change with higher levels and faster pace of growth of agriculture. Our study of the rural industrial units in the two selected areas in Uttar Pradesh, to which we now turn, is aimed at examining these hypotheses on the differential pattern and performance of rural industries in agriculturally different situations.

The two areas in which investigations among the sample of units are carried out for our study are one in Ballia district of Eastern Uttar Pradesh, and the other in Muzaffarnagar district of Western Uttar Pradesh. In terms of agricultural situation the two districts differ sharply. Ballia has a yield levels of 7.95 quintals per hectare in rice, 15.07 quintals in wheat and 448 quintals in sugarcane. The figures for Muzaffarnagar are, 14.56 quintals, 23.02 quintals and 520 quintals. Ballia's main crops are paddy and wheat, and Muzaffarnagar's wheat and sugarcane.

In each of these two districts, a sample of 110 rural industrial units was selected for the present study. The selection was purposive at various stages. After selecting the two districts purposively, 4 blocks, the total units of development administration, were selected on the criterion of the relatively higher concentration of rural industries. In each block, all such industrial activities in each of which at least 10 units were found operating during the period of survey (January - February 1985), were selected, and units were selected for survey from each of such industries, generally on the PPS basis, but care was taken to see that not less than 5 and not more than 15 units were covered from any industrial activity. The study did not aim at any estimation, therefore, strict principle of representativeness was not followed, but the pattern that emerged in the sample fairly reflects the structure of rural industrial activity in the two selected areas.

i) Pattern of Industries

Despite significantly different agricultural situation between the two, the pattern of industries in the selected areas in Muzaffarnagar and Ballia districts did not turn out to be very much different. In Ballia, 10 industries found to be operating to a significant extent were covered (Table 6). Eight of them were found to exist with similar proportion in Muzaffarnagar as well. All these eight are traditional industries carried out from generation to generation by households belong-

Table 6 : Sample Units

Activity	Number of units	
	Ballia	Muzaffarnagar
1. Pottery	14	15
2. Basketry and Mat-making	15	15
3. Rope-making	5	12
4. Carpentry	13	12
5. Blacksmithy	15	15
6. Shoe-making	13	10
7. Cane crushing	-	7
8. Agricultural implements	8	9
9. Tikli (Plastic Jewellery)	11	-
10 Weaving	10	15
11 Oil mills (traditional)	6	-
TOTAL	110	110

Note : All units except 2 in carpentry and 4 in agricultural implements in Ballia; and 3 in cane crushing in Muzaffarnagar are household units. All units in both districts, except 3 in tikli (Ballia) have male heads.

ing to certain social groups as part of the village economic and social structure. Only one of them, namely, agricultural implements is an industry of more recent origin. Earlier carpenters and blacksmiths were responsible for meeting the requirements of the manufacture and repair of the tools of traditional agriculture. While these crafts still continue, new units making and, mainly, repairing modern implements used in agriculture using new technology have emerged both in Ballia and Muzaffarnagar. Two other activities different in the two areas are : cane crushing in Muzaffarnagar and oil crushing in

Ballia, both based on the local availability of agricultural raw material. An odd industrial activity, plastic jewellery, with no relation with local material, and little relation with local demand, is found in Ballia. There is found to be large concentration of units in this activity in the area. They make a single item of plastic jewellery, viz, forehead sticker (tikli) used by women all over the country. This area in Ballia is reported to be one of the few location of this activity in the country.

Industrial structure of the two areas, in terms of broad product categories is thus not very dissimilar from each other. Some notable differences are, however, observed once we go into further details about the nature of items produced in each region. It is, therefore, worthwhile to note some of the qualitative aspects of each of the industry in the two regions, before we start the analysis of the data collected from the sample units.

Pottery has been an age-old traditional activity in the rural areas. The raw material used is clay and technology is traditional, using potter's wheel in both the areas studied. But while units in Ballia are mainly producing small items like earthen tumblers, cups and water pots, and also tiles to some extent, those in Muzaffarnagar are specialising in the production of large bins for storage of foodgrains, besides, producing traditional items. Basketry units in Ballia make bamboo baskets for packaging and transporting of fruits and shrub bas-

kets for agricultural purposes, while those in Muzaffarnagar make baskets from mulberry branches for agricultural purposes and also mats of grass that grows on the banks of local river.

Ropes are generally made of fibres drawn from special kinds of trees and plants and used for tying and fastening of various items by the households. There is no difference in material used, product and technology between the two areas; but some units in Ballia used leg-operated machine to twist the fibre while in other cases the technology was entirely manual. Car-pentry units in Ballia mainly make items of use by households such as beds, doors, windows and furniture, while those in Muzaffarnagar are mostly engaged in manufacture and repair of agricultural implements. In Ballia some units are using electricity and a few have acquired orders to manufacture horse carts to supply to beneficiaries under the Integrated Rural Development Programme (IRDP).

Some of the blacksmithy units in Ballia have added locks and some in Muzaffarnagar scissors to their traditional products such as harrows, axes, chaff cutters, etc. Units in shoe-making in Ballia make poor quality shoes, chappals and sandals or sell semi-finished leather to others, while most of them in Muzaffarnagar produced shoes with better quality and finish. Cane crushing units studied in Muzaffarnagar only, use modern power-driven machines for their production and make Gur (jaggery) or Khand (Sulphur). In agricultural implements no difference is noticed between the two areas and most units are engaged in their repair of tractors, threshers and pump-sets.



Units making tikli or bindi (forehead sticker) are found in Ballia only, and that too concentrated in one block. They make the single item of jewellery, using discarded X-ray sheets and plastic sheets as raw material, mostly procured from Delhi, about 800 Kms. from their location. The three stages of production consist of colouring of sheets, cutting them into round and triangle shapes, and packing. Most units carry all these processes manually, but some units have now installed machines and equipment for cutting and colouring of sheets. Weaving is widely prevalent activity in all rural areas. Technology used is the same in all areas, handlooms are the central equipments. The products turned out in each area differ to some extent according to demand pattern in the region. Oil crushing units studied in Ballia use power and diesel operated machines, buy oilseed from the market and sell to the dealers. There are, however, units in this activity which use bullock driven device for crushing and also those who carry on job-work for the local households.

The mode of operation of units as also the social base of industrial activities is similar in the two areas. On the criterion of major share of family labour or hired labour in employment, all but nine units, six units in Ballia (2 in carpentry and 4 in agricultural implements) and three in cane crushing in Muzaffarnagar, were household units. The heads of enterprises were male in both areas and in all industries, except in the case of three units in Ballia engaged in plastic jewellery. Most of the

activities are traditional and have been carried out by social groups identified as Scheduled Castes. These castes constitute the single most important group running the rural industrial units even now. But while the percentage of entrepreneurs belonging to Scheduled Castes was high at 55 in Ballia, it was low at 29 per cent in Muzaffarnagar (Table 7). In Muzaffarnagar, a higher percentage of Muslims in local population made their proportion in the sample of entrepreneurs higher at 42 per cent as compared to 16 in Ballia. But practically all Muslim entrepreneurs of Muzaffarnagar were traditional artisans while the majority of them in Ballia were all from non-artisan groups. Carpenters in Ballia are from Hindu intermediate castes. Only a small number, three in Ballia and one in Muzaffarnagar, of entrepreneurs were from the upper castes amongst Hindus. The rural industrial activity was thus being carried out predominantly by the intermediate and Scheduled Caste Hindus and traditional artisan Muslims. The intermediate caste Hindus and non-artisan Muslims are mainly in the relatively new and non-traditional activities requiring a minimum amount of resource, in terms of capital and fixed assets. Examples of such activities are cane crushing, oil crushing and plastic jewellery.

The above suggestion is further supported by the evidence that while all traditional activities are mostly inherited by their present owners, the activities being run by the caste Hindus and non-artisan Muslims were started by the present entrepreneurs. Three-fourths of the units in aggregate, 81 per cent in Muzaffarnagar and 70 per cent in Ballia were inherited and the rest

Table 7 : Caste and Community Association of Activities

Activity	Caste of the Head/Household										
	Upper Caste Hindus			Intermediate Castes			Scheduled Castes			Muslims	
	B	M	T	B	M	T	B	M	T	B	M
1. Pottery	-	-	-	14	15	29	-	-	-	-	-
2. Basketry	-	-	-	-	1	1	15	14	29	-	-
3. Rope-making	-	-	-	-	-	-	5	5	10	-	-
4. Carpentry	-	-	-	-	10	10	13	-	13	-	7
5. Blacksmithy	-	-	-	-	-	-	15	-	15	-	2
6. Shoe-making	-	-	-	-	-	-	13	8	21	-	15
7. Cane crushing	-	3	3	-	4	4	-	-	-	-	2
8. Agricultural implements	-	-	-	8	3	11	-	-	-	-	-
9. Tikli	-	-	-	2	-	2	-	-	-	-	6
10. Weaving	2	-	2	-	-	-	-	5	5	9	-
11. Oil Mills	1	-	1	4	-	4	-	-	-	8	10
TOTAL	3	3	6	28	33	61	61	32	93	18	42
	(2.7)	(0.9)	(1.8)	(25.5)	(30.0)	(27.7)	(55.5)	(29.1)	(42.3)	(16.4)	(41.8)
											(29.1)

38

Figures in brackets are percentages to the Ballia, Muzaffarnagar and total sample, respectively.

Note: Upper Caste Hindus include : Brahmins, Kshyatriyas and Vaishyas; Intermediate Castes are mainly the 'backward' cultivator castes; and Scheduled Castes are traditional low castes specified as such.

Among Muslims, a distinction was made between 'artisan castes' and 'others'. In Ballia the 18 Muslim households were distributed as follows : 8 artisans (all in weaving), 10 others (9 in tikli and 1 in oil milling) and in Muzaffarnagar distribution of the 46 households was as follows : 2 non-artisans (in cane crushing) and 44 artisans (all the Muslim households in other activities).

started by the present entrepreneurs (Table 8). But while all or practically all the units in pottery, basketry and carpentry were inherited, all units in cane crushing, plastic

Table 8 : Origin of the Units : Inherited or Started  
by Present Generation

Activity	Ballia		Muzaffarnagar		Total	
	Inher- ited	Star- ted	Inheri- ted	Star- ted	Inhe- rited	Star- ted
1. Pottery	14	-	15	-	29	-
2. Basketry	15	-	13	2	28	2
3. Rope-making	3	2	9	3	12	5
4. Carpentry	13	-	11	1	24	1
5. Blacksmithy	9	6	15	-	24	6
6. Shoe-making	11	2	8	2	19	4
7. Cane Crushing	-	-	-	7	-	7
8. Agricultural implements	6	2	4	5	10	7
9. <u>Tikli</u>	-	11	-	-	-	11
10. Weaving	5	5	14	1	19	6
11. Oil Mills	-	6	-	-	-	6
TOTAL	76 (70)	34 (30)	89 (81)	21 (19)	165 (75)	55 (25)

jewellery and oil crushing were new ventures. In rope-making most units are inherited but a good number are also new in both the areas. In blacksmithy, all units in Muzaffarnagar are inherited, but two-thirds of them in Ballia are new. One-fourth of agricultural implement units in Ballia, and majority of them in Muzaffarnagar are also fresh ventures of the present entrepreneurs. The inherited units may be continued even without



a good level of earnings, due to the lack of a better opportunity : in fact, an overwhelming majority of entrepreneurs continuing the inherited activity, 83 per cent in Ballia and 82 per cent in Muzaffarnagar, stated that they continue it due to lack of an alternative. Starting of a new unit, however, implies that there exists good potential of growth in that activity. On this basis the two areas do not show any differential pattern, but different activities do. Improved blacksmithy with the use of power, agricultural implements, artificial plastic jewellery, cane crushing and oil crushing with a large number of non-inherited units indicate that these activities represent the growth points in the rural industrial structure of the areas under study. And it is also of interest to note that the entrepreneurs of most freshly started units had farming as their father's occupation; 86 per cent of new entrepreneurs in Ballia and 38 per cent of these in Muzaffarnagar were in this category. The next important category in Ballia was of those with trading background. In Muzaffarnagar, however, quite a few wage earners, farm or non-farm, got new units started.

ii) Importance of Industrial Activity for Households

The traditional-modern divide of rural industries according to the resource position of the entrepreneurs seems quite evident if one looks at the pattern of their land ownership (Table 9). Of course, 75 per cent of them are landless, 87 per cent in Muzaffarnagar and 50 per cent in Ballia. But all those in cane



Table 9 : Landowning of the Rural Industrial Households (Landholding size in ha.)

Activity	BALLIA				MUZAFFARNAGAR				TOTAL			
	Nil	Upto 1	1-2	2+	Nil	Upto 1	1-2	2+	Nil	Upto 1	1-2	2+
1. Pottery	5	2	5	2	15	-	-	-	20	2	5	2
2. Basketry	15	-	-	-	15	-	-	-	30	-	-	-
3. Rope-making	4	1	-	-	12	-	-	-	16	1	-	-
4. Carpentry	2	11	-	-	10	-	1	1	12	11	1	1
5. Blacksmithy	6	-	9	-	10	1	2	2	16	1	11	2
6. Shoe-making	4	9	-	-	10	-	-	-	14	9	-	-
7. Cane crushing	-	-	-	-	1	-	-	6	1	-	-	6
8. Agricultural Implements	5	2	1	-	8	-	-	1	13	2	1	1
9. <u>Tikli</u>	8	-	3	-	-	-	-	-	8	-	3	-
10. Weaving	3	2	5	-	15	-	-	-	18	2	5	-
11. Oil Mills	3	1	1	1	-	-	-	-	3	1	1	1
TOTAL	55 (50.0)	28 (25.5)	24 (21.8)	3 (2.7)	96 (87.2)	1 (0.9)	3 (2.7)	10 (9.2)	151 (68.6)	29 (13.2)	27 (12.3)	13 (5.9)

Note : Figures in brackets are percentages to the respective samples.

In Ballia no household had over 5 hectares of land and only one (in pottery) between 3 and 5 hectares; in Muzaffarnagar, 7 households (6 in cane crushing and 1 in agricultural implements) had more than 5 hectares of land.

crushing business own more than five hectares of land each; 50 per cent of those in oil crushing are land owners, and majority in carpentry and 47 per cent of those in blacksmithy are also own some land. In plastic jewellery while most have no owned land, three have a sizeable landholding each.

How important is the industrial activity for the households engaged in it from the viewpoint of employment for their members and income to the family? In terms of the majority of household workers engaged, one half of the sample households in Ballia and 73 per cent of those in Muzaffarnagar has the industry under study as their main occupation (Table 10). In Ballia most of them engaged in pottery, and shoe-making were carrying on agriculture as their main occupation with mostly less than one hectare of landholding each. Agricultural labour was main occupation in case of half the household engaged in basketry in Ballia. But all those engaged in blacksmithy and all but one in agricultural implements in this district had them as their main activity. It is interesting to note that none of those engaged in oil crushing carried it on as main activity : 50 per cent of them have most of their family members in trade, 40 per cent in agriculture and 10 per cent in non-farm wage/salary jobs. In Muzaffarnagar, on the other hand, a large proportion of entrepreneurs undertook the industrial activity as their main occupation. All potters and most of those in basketry, carpentry, blacksmithy, agricultural implements, shoe-making and weaving carried them on as their main activity while all



those in cane crushing had agriculture as their main activity and majority of the households engaged in rope-making had agricultural labour as their main occupation.

Thus, so far as the employment is concerned over 60 per cent of the households carried on the industrial activity as their principal occupation. In terms of income, on an average, a rural industrial household in Ballia derived 79 per cent of its income from the activity concerned, and the average for Muzaffarnagar was 62. In Ballia, the highest dependence on the industrial activity for the household income is 96 per cent in the case of agricultural implements followed by plastic jewellery (92%), and weaving (88%); and, lowest in rope-making (54%) followed by oil crushing (63%) and pottery (67%). While these categories are in line with the main activities of the households on the criterion of employment, but most households in rope-making carry it on as their main activity yet derive only 54 per cent income from it on an average, and, most household in shoe-making carry it as secondary activity, yet derive 81 per cent of household income from it on an average.

In Muzaffarnagar, households in shoe making of whom 90 per cent engage in it as the main activity, derive on an average, practically the entire (98%) income from it. The next to follow are households in agricultural implements deriving, on an average, 93 per cent income from it. But those engaged in most other activities, even when as the main activity, derive relatively smaller proportion of their income from them. All pottery

households carry it on as their main activity, yet derive only 61 per cent income from it. Those in basketry, mostly dependent on it for employment, get only 43 per cent of income from this activity. Rope making, cane crushing and weaving provide between 44 to 49 per cent of the incomes of the households engaged in them. Of them, those in cane crushing are mainly in agriculture but others are engaged mainly in the activity concerned. Thus in a number of cases the households derive smaller proportion of income despite involvement of larger labour in industrial activity as compared to their secondary activity.

### iii) Mode and Size of Production

But inspite of higher labour absorption in relation to income derived, the rural industrial units, in fact, have a relatively small number of workers per unit. In the sample units as a whole, the average number of workers employed is 4.06, it is higher in Ballia at 4.73 and low at 3.39 at Muzaffarnagar (Table 11). Three-fourths of the workers are household workers. About 55 per cent units in Ballia and 76 per cent in Muzaffarnagar use no hired labour. Percentage of household workers is lower at 69 per cent in Muzaffarnagar than in Ballia at 78 per cent despite the fact that in Muzaffarnagar, pottery, basketry, and rope making units do not use any hired labour, while in Ballia it is only rope making and weaving units that operate without hired labour, and pottery, basketry, carpentry, agricultural implements, plastic jewellery and oil crushing make



Table 11 : Workers in the Sample Units

Activity	BALLIA						MUZAFFARNAGAR						TOTAL					
	Number			Average			Number			Average			Number			Average		
	FL	HL	T	FL	HL	T	FL	HL	T	FL	HL	T	FL	HL	T	FL	HL	T
1. Pottery	66	16	82	4.71	1.14	5.85	51	-	51	3.40	-	3.40	117	16	133	4.03	0.55	4.58
2. Basketry	53	19	72	3.53	1.27	4.80	36	-	36	2.40	-	2.40	89	19	108	2.97	0.63	3.60
3. Rope-making	13	-	13	2.60	-	2.60	35	-	35	2.92	-	2.92	48	-	48	2.82	-	2.82
4. Carpentry	31	24	55	2.38	1.85	4.23	28	1	29	2.33	0.08	2.41	59	25	84	2.36	1.00	3.36
5. Blacksmithy	62	2	64	4.13	0.13	4.26	25	13	38	1.66	0.87	2.53	87	15	102	2.90	0.50	3.40
6. Shoe-making	31	4	35	2.38	0.31	2.69	14	12	26	1.40	1.20	2.60	45	16	61	1.96	0.70	2.66
7. Cane crushing	-	-	-	-	-	-	12	79	91	1.68	11.29	13.00	12	79	91	1.71	11.29	13.00
8. Agricultural implements	23	12	35	2.88	1.50	4.38	22	10	32	2.44	1.11	3.55	45	22	67	2.65	1.29	3.94
9. <u>Tikli</u>	37	21	58	3.36	1.91	5.27	-	-	-	-	-	-	37	21	58	3.36	1.91	5.27
10. Weaving	51	-	51	5.10	-	5.10	34	-	34	2.27	-	2.27	85	-	85	3.40	-	3.40
11. Oil Mills	40	15	55	6.67	2.50	9.17	-	-	-	-	-	-	40	15	55	6.67	2.50	9.17
TOTAL	407	113	520	3.70	1.03	4.73	257	115	372	2.34	1.05	3.39	664	228	892	3.02	1.04	4.06

FL = Family Labour; HL = Hired Labour; T = Total

a significant use of hired labour. That is because use of hired labour is much higher in Muzaffarnagar in blacksmithy (34%), shoe-making (46%) and cane crushing (87%). Thus, similar activities seem to be operating on different mode in the two areas : whereas in Ballia carpentry and plastic jewellery units are tending towards non-household ones with 44 and 36 per cent of the hired labour; in Muzaffarnagar, such trend is discernible in the case of blacksmithy, shoe-making and, of course, cane crushing units. Cane crushing units consequently are also the largest sized units in either area, with an average of 13 workers. A trend towards the non-household mode of production is generally evident from the increasing proportion of hired labour. During 1975-84, there occurred only a small increase in the total employment in the sample units but most of it was contributed by increase in hired labour. There occurred, in fact, an absolute decline in employment of family labour both in Ballia and Muzaffarnagar, of the order of 0.09 and 0.23 per cent per annum respectively (Table 12). But employment of hired labour increased in both areas, much more (28% per annum) in Muzaffarnagar than in Ballia (5%). This has led to a growth rate of total employment of 0.73 per cent in Ballia and 2.89 per cent in Muzaffarnagar. In the former, the major contribution to the growth of employment was made by blacksmithy and oil crushing, mostly in the form of family labour; and in the latter by cane crushing and agricultural implements, mainly in the form of hired labour. Pottery and basketry in Muzaffarnagar, and rope, carpentry, plastic jewellery, and weaving in Ballia experienced a decline in employment.

Table 12 : Growth of Employment in Sample Units (1975-84)(Average annual rates of growth in number of workers  
in sample units by activity (%))

Activity	Family Labour		Hired Labour		Total	
	Ballia	Muzaffar-nagar	Ballia	Muzaffar-nagar	Ballia	Muzaffar-nagar
1.Pottery	0.22	-0.98	4.92	NE	0.86	-0.98
2.Basketry	0.32	-3.84	4.06	NE	1.12	-3.84
3.Rope-making	-1.48	0.07	NE	NE	-1.48	0.07
4.Carpentry	-2.97	-0.32	5.33	+	-0.67	0.09
5.Blacksmithy	7.24	-0.33	0.00	3.99	6.96	0.80
6.Shoe-making	-0.74	3.03	27.16	5.56	0.21	4.09
7.Cane crush- ing	-	x	-	51.61	-	61.89
8.Agricultural Implements	0.07	2.44	3.50	91.67	1.05	7.55
9.Tikli	-3.45	-	*	-	-4.36	-
10.Weaving	-5.03	0.10	**	NE	-1.57	0.10
11.Oil Mills	3.71	-	0.46	-	2.66	-
TOTAL	-0.09	-0.23	5.00	27.78	0.73	2.89

\* 11 hired labour in 1975, none in 1984

\*\* No hired labour in 1975, 19 hired labour in 1984

x No family labour in 1975, 12 in 1980, and 11 in 1984

NE Not employed in any year

+ Not employed in 1975, 10 workers in 1984.

Rural industrial activity both in Ballia and Muzaffarnagar, though tending to use more hired labour in recent years, however, offers only part-time employment to most hired labour. Of the total hired labour used in the sample units, 72 per cent gets employment with them for less than six months. Most (56%) household workers engaged in these units are, however, on a full-time basis, the proportion of full-timers among household workers is

higher in Ballia (61%), as compared to Muzaffarnagar (47%).

In Ballia, part-time household workers are more than the full-timers only in pottery, but in Muzaffarnagar, part-timers are in majority in all activities except in blacksmithy, cane crushing and agricultural implements. In shoe-making, all household workers work full time; and, also most hired workers are engaged for most of the year. The pattern is the reverse in Ballia. But for a very large chunk of hired workers in cane crushing, hired workers would have constituted a small proportion of the total workforce in rural industries in Muzaffarnagar, but then most of them would have been there for the major part of the year, unlike in cane crushing, which, being a seasonal activity engages workers only for some months in a year.

Wages of hired labour in rural industries favourably compare with the agricultural wages in the two regions. As against an average agricultural wage of Rs.7.50 per day in Ballia and Rs.10 in Muzaffarnagar, the average wages in industrial activities are estimated at Rs.11.25 in Ballia and Rs.12.45 in Muzaffarnagar. Skilled workers earn in Muzaffarnagar a higher wage than those in Ballia as well as those in agriculture locally; but the unskilled workers are paid not only lower than those in Ballia, but also lower than the local agricultural wages. It seems rather an unusual situation in so far as the levels of agricultural development and demand for labour is relatively high in Muzaffarnagar.

With a small average size of employment, a rural industrial unit is found to produce a relatively large volume of output, worth over Rs.29,000 in Ballia and Rs.43,500 in Muzaffarnagar (Table 13). The high figure for Muzaffarnagar is to a large extent attributable to the presence of seven cane crushing units, each of which produces output relatively large size makes the average rather high. The average per unit exceeding Rs.5,00,000. Excluding this activity, the average goes down to around Rs.11,000. In the case of Ballia, after removing plastic jewellery units with a relatively large average size, we get the average size of Rs.22918. Among the other industries with a relatively larger average size of output per unit (above Rs.10,000) are carpentry, shoe-making, agricultural implements, and weaving in Ballia, and carpentry, blacksmithy, shoe-making and agricultural implements in Muzaffarnagar. The overall size structure of units does not differ signi-

Table 13 : Distribution of Sample Units by Output Size

(Value in Rs.)

	BALLIA					MUZAFFARNAGAR				
	Upto 5000	5000-10000	10000-25000	25000+	Average	Upto 5000	5000-10000	10000-25000	25000+	Average
1. Pottery	5	8	-	1	6796	7	5	3	-	6410
2. Basketry	6	8	1	-	5362	3	12	-	-	6100
3. Rope making	1	1	3	-	9194	9	-	3	-	5718
4. Carpentry	-	3	6	4	32354	1	4	4	3	10944
5. Blacksmithy	5	7	3	-	7892	1	5	8	1	14122
6. Shoe-making	2	3	8	-	10969	-	-	6	4	22733
7. Cane Crushing	-	-	-	-	-	-	-	-	7	523964
8. Agri. Implements	-	-	-	8	44313	-	1	7	1	19048
9. <u>Tikli</u>	-	2	4	5	87909	-	-	-	-	-
10 Weaving	3	2	3	2	22284	-	11	4	-	8416
11 Oil Mills	-	-	4	2	22217	-	-	-	-	-
TOTAL	22	34	32	22	29417	21	38	35	16	43565



ificantly between the two areas; 20 per cent of units have an output size of less than Rs.5,000 per annum, most of these units are in pottery in both areas, basketry in Ballia, and rope making in Muzaffarnagar. Another one-third of the units in each area are in the output size group of Rs.5,000 to Rs.10,000 and a similar percentage in the next size group of output Rs.10,000 to Rs.25,000. The last group of units with over Rs.25,000 of output constitute 20 per cent in Ballia and 15 per cent in Muzaffarnagar. While in Ballia all units in agricultural implements are in this group with an average size of output of Rs.44,313, all those in cane crushing in Muzaffarnagar are in this group with an average output size of Rs.5,23,964.

iv) Technology and Capital

The average size of output in different activity is seen to be related well with the use of machinery and power by units. On the whole, use of machinery is generally at a low level as indicated by the value of machinery and equipment or of fixed assets per unit. The figure of the value of plant and machinery averages to Rs.2,657 and all fixed assets to Rs.2,780 in Ballia, the corresponding values for Muzaffarnagar are Rs.3,325 and Rs.3,415 respectively (Table 14). The figures are very low, mostly less than Rs.500, in the case of units in pottery, basketry and rope making in both districts and also in carpentry in Muzaffarnagar. The highest figure of the value of machinery and equipment is obtained in cane crushing (Rs.33,714) in Muzaffarnagar, and next in agricultural implements in Ballia (Rs.14,675). The only other activity using machinery worth

Table 14 : Machinery, Equipment and Fixed Capital

Activity	BALLIA						MUZAFFARNAGAR					
	Value of Units with Machinery & Equipment			No. of units with single equipment worth Rs. 1000 or more			Value of Units with Machinery and Equipment			No. of units with single equipment worth Rs. 1000 or more		
	Upto 1000 (Rs.)	1000-5000 (Rs.)	Average (Rs.)	Upto 1000 (Rs.)	1000-5000 (Rs.)	Average (Rs.)	Upto 1000 (Rs.)	1000-5000 (Rs.)	Average (Rs.)	Upto 1000 (Rs.)	1000-5000 (Rs.)	Average (Rs.)
1. Pottery	14	-	370	-	-	730	15	-	386	-	-	386
2. Basketry	15	-	78	-	-	78	15	-	44	-	-	44
3. Rope making	5	-	410	-	-	410	11	1	369	-	-	575
4. Carpentry	8	1	3055	4	-	3116	12	-	408	-	-	408
5. Blacksmithy	3	10	2179	5	-	2149	7	8	1014	-	-	1014
6. Shoe Making	8	5	952	5	-	952	2	7	3021	5	-	3021
7. Cane Crushing	-	-	-	-	-	-	-	2	33714	7	-	33714
8. Agricultural Implements	-	-	8 14675	8	-	14800	3	3	4786	5	-	4786
9. Tikli	6	4	1 1973	5	-	1987	-	-	-	-	-	-
10 Weaving	3	7	- 1406	3	-	1408	-	15	1531	15	-	1531
11 Oil Mills	-	2	4 7654	6	-	7654	-	-	-	-	-	-
TOTAL	62	29	19 2657	36	-	2780	65	36	3325	32	-	3415

over Rs.5,000 is oil crushing in Ballia. Any machinery of some significance (namely an item valued at over Rs.1,000) is used by significant number of units in carpentry, agricultural implements, blacksmithy, shoe making, plastic jewellery, weaving and oil crushing in Ballia. None of the units in pottery, basketry and rope-making has any such machinery in either area. In Muzaffarnagar none of the carpentry and blacksmithy units had a single machine worth over Rs.1,000. But all the units in cane crushing and weaving have such machinery in Muzaffarnagar.

Value of machinery and equipment, and particularly the use of substantial machines is, of course, related with the use of power. In Ballia, most units in carpentry and plastic jewellery, some in blacksmithy, but all in agricultural implements and oil crushing use electricity for their operations. In Muzaffarnagar, some units in blacksmithy, all in cane crushing and most units in agricultural implements were using power. Use of power is, of course, dependent on the availability of electricity and the process and the product. All villages are not electrified in either area. Agricultural implements, cane and oil crushers and agricultural implements of the modern variety would certainly require use of electricity, while weaving which is done mainly on handlooms in rural areas, pottery, basketry and rope making units may not use electricity even if it were available.

With little use of machinery and hired labour, the major part of the operating expenses of rural industrial units consist of raw material. In either area most industries spend over three-

fourths of their working funds on raw material. The notable exceptions are pottery, basketry in Ballia and agricultural implements in Muzaffarnagar. In these cases, raw materials accounted for just over 50 per cent of the total current expenses. Wages of hired labour constituted a significant proportion of expenses in these cases.

v) Productivity, Incomes and Growth

With the high raw material content in most activities, value-added output ratio turns out to be 39 per cent in Ballia and 37 per cent in Muzaffarnagar (Table 15). Accordingly value added per unit estimated to Rs.11,414 in Ballia and Rs.16,121 in Muzaffarnagar. Due to differences in employment size, value added per worker in the latter (Rs.4,755) turned out to be almost twice as high as in the former (Rs.2,413). But as the proportion of hired labour is higher in Muzaffarnagar, earnings per household worker in that district (Rs.2,032) were marginally lower than in Ballia (Rs.2,176). Among industries, cane crushing in Muzaffarnagar yielded the highest value added per worker (Rs.11,991) followed by plastic jewellery in Ballia (Rs.8,363). The lowest value added per worker (Rs.595) is observed in oil crushing in Ballia particularly because of large average employment size of units. Pottery, basketry, rope-making, shoe making and weaving are the other low productivity industries, but in each of them significant differences are observed between the two areas. In pottery, basketry and blacksmithy, productivity in Muzaffarnagar is 1.5 to 3.0 times higher

Table 15 : Value Added, Net Income and Earnings

Activity	(Rs. per annum)							
	BALLIA				MUZAFFARNAGAR			
	Value added Per unit	Net per worker	income per unit	Earn- ings per family worker	Value added Per unit	Net per worker	income per unit	Earn- ings per family worker
1. Pottery	5334	912	4422	939	4878	1435	4878	1435
2. Basketry	4353	907	3591	1017	4493	1872	4493	1872
3. Rope-making	4741	1823	4741	1823	3295	1128	3295	1128
4. Carpentry	13516	3195	11354	4771	6944	2881	6804	2920
5. Blacksmithy	4665	1095	4548	1101	7852	3104	7112	4284
6. Shoe-making	4070	1513	3785	1590	13935	5359	10863	7759
7. Cane Crush- ing	-	-	-	-	155877	11991	129501	77084
8. Agricultu- ral imple- ments	24783	5658	20658	7173	13403	3775	11538	4729
9. <u>Tikli</u>	44075	8363	41687	12407	-	-	-	-
10 Weaving	7751	1520	7751	1520	2733	1204	2733	1204
11 Oil Mills	5459	595	2984	447	-	-	-	-
TOTAL	11414	2413	10116	2176	16121	4755	14940	2032

Value added = Value of output - (operating expenses excluding wages of hired labour) - depreciation (10% of value of machinery and equipment).

Net income = Value added - wages paid to hired labour

Earnings per family worker = Net income per unit/number of family workers (part time + full time).

than in Ballia, while in rope-making and weaving the order is the reverse. Shoe-making in Muzaffarnagar is in the ranks of high productivity industries while in Ballia, it is amongst those with low productivity.



Given the facts that most industrial units in rural areas are carried out as household enterprises with the main objective of earning a livelihood, and that a majority of the household workers are full-time on these activities, the industrial activity constitutes the major source of income to sustain these workers and their dependence. Overall 70 per cent of the income of the households engaged in these activities is derived from them. If one takes the figure of Rs.4,000 per household per annum as the minimum to get over the poverty line in 1984, an income of Rs.2,800 per enterprise or Rs.933 per household worker would be considered as the minimum from the industrial activity to enable the households to cross the absolute "poverty line". All activities meet this criterion on the per worker income basis, and all but weaving on the per enterprise basis, in Muzaffarnagar. In Ballia, all activities except oil crushing meet the criterion on the basis of earnings per household worker, and all on per enterprise basis. But again, differences between activities and the two regions are substantial : per worker earnings are very high at Rs.77,000 in cane crushing in Muzaffarnagar; the only other activity in either areas to cross Rs.10,000 mark is plastic jewellery in Ballia at Rs.12,407. Shoe making has the next highest earning per household worker (Rs.7,759) in Muzaffarnagar, but this activity generates rather low income per worker (Rs.1,510) in Ballia. A difference in the same direction, and of similar order is seen in blacksmithy. Agricultural implements generate one of the highest income (Rs.7,713) per household worker in Ballia; in Muzaffarnagar,

units in this industry generate reasonably high income per worker, yet that is (Rs.4,729) relatively much lower than in Ballia.

Thus, most rural industrial activities in each of the two areas studied are found to provide a reasonable income to the households engaged in them. Most of them, particularly pottery, basketry, rope making and weaving in both areas and blacksmithy, and shoe making, in Ballia, are, however, in the category of providing mere subsistence; and, oil crushing in Ballia fails to do even that, particularly because there seems to be engaged too many household workers per unit to gain an adequate income from the amount of output the units turn out. Carpentry and agricultural implements in both places, and blacksmithy in Muzaffarnagar seem out of the subsistence syndrome and on the way to commercial production on a large scale with good profit margins. And cane crushing and shoe making in Muzaffarnagar, and plastic jewellery in Ballia are already commercially thriving, generating high incomes and profits.

Performance of different rural industrial activity in terms of productivity and incomes is also well substantiated by overall growth that has taken place in these activities during 1975-84 (Table 16).<sup>8</sup> Output, measured at the constant 1975 prices, has more than doubled in Ballia and has risen by almost three quarters in Muzaffarnagar. A doubling of output was achieved by blacksmithy, and agricultural implements in both areas, a near doubling by shoe making in both areas and plastic jewellery,

<sup>8</sup> Growth rates are based on the figures of output as reported by respondents out of their memory, as no records are maintained by these units. Thus, they should be taken only as broad indicators of the trends and inter-industry situation, and not literally as they suffer from the bias that recall lapse may introduce in the responses.

Table 16 : Growth of Output in Sample Units (Growth 1975-84)

Activity	Number of units									
	BALLIA					MUZAFFARNAGAR				
	Nega- tive	Upto 25%	20- 50%	50% +	Average	Nega- tive	Up to 25%	20- 50%	50% +	Average
1. Pottery	7	1	6	-	- 6.50	15	-	-	-	- 45.20
2. Basketry	5	1	-	9	+ 55.70	15	-	-	-	- 30.70
3. Rope Making	2	-	3	-	- 13.20	9	-	1	2	- 12.75
4. Carpentry	-	1	-	12	+174.00	-	3	6	3	+ 37.70
5. Blacksmithy	-	7	6	2	+210.75	-	-	11	4	+110.20
6. Shoe Making	-	5	1	7	+ 96.70	-	1	8	1	+ 85.25
7. Cane Crushing	-	-	-	-	-	-	-	5	2	+ 92.20
8. Agri. Imple- ments	-	-	5	3	+128.20	-	-	4	5	+115.70
9. <u>Tikli</u>	-	2	5	4	+ 95.00	-	-	-	-	-
10 Weaving	-	3	6	1	+103.60	-	12	3	-	+ 31.20
11 Oil Mills	2	-	2	2	+ 83.50	-	-	-	-	-
TOTAL	16	20	34	40	+105.70	39	16	38	17	+ 73.20

Average has been computed for the entire period 1975-84 after deflating the growth in value of output by wholesale price index of all commodities which with 1975 = 100 would be 185 in 1984.

and oil crushing in Ballia and cane crushing in Muzaffarnagar. But pottery and rope making and basketry in Muzaffarnagar experienced a decline. Weaving doubled its output in Ballia, but experienced a small growth in Muzaffarnagar. Similarly, carpentry increased its output by 174 per cent in Ballia but only by 38 per cent in Muzaffarnagar.

As we saw earlier, employment growth has been much slower, than the output growth, but it has been higher in Muzaffarnagar than in Ballia, though output growth was faster in the latter than the former. Industries with significant positive growth of output as well as employment are : agricultural implements, shoe making and blacksmithy in both areas; cane crushing in Muzaffarnagar, and oil crushing in Ballia. But overall, there does not appear to be a high elasticity of employment in respect with output in these industries. In a way, it seems that any opportunity of expansion in output and income is mostly utilised in making the employment of those already engaged in these activities more effective, since, as unpaid household workers, they have generally been underemployed according to the time criterion, but much more according to the productivity and income criteria.

vi) Credit, Raw Material Procurement and Marketing

Majority of units meet their capital requirements from their own sources. In Ballia, forty per cent of the units had borrowed funds mostly from institutional sources at an average of Rs.4,743 of which 42 per cent had been paid off (Table 17). In Muzaffarnagar, only 24 per cent units borrowed again mostly from institutional sources at an average of Rs.3,177 of which 62 per cent was outstanding at the time of survey. In Ballia, borrowing units were in large proportion in basketry, carpentry, shoe making and oil crushing, in each of which 50 per cent or more units borrowed; in pottery, and blacksmithy about one-third unit

Table 17 : Borrowing by Sample Units

Activity	BALLIA				MUZAFFARNAGAR					
	No. of Units		Average loan		No. of Units		Average loan			
	(Rs.) per		(Rs.) per		(Rs.) per		(Rs.) per			
	borrower		borrower		borrower		borrower			
	Not borrow- ing	Borrow- ing	Total	Out- stand- ing	Not borrow- ing	Borrow- ing	Total	Out- stand- ing		
				Insti- tutional	Insti- tutional			Insti- tutional	Insti- tutional	
				Source (No. of units)	Source (No. of units)			Source (No. of units)	Source (No. of units)	
				Indi- genous	Indi- genous			Indi- genous	Indi- genous	
1. Pottery	9	5	366	206	5	2	3457	2557	7	-
2. Basketry	5	10	2780	1135	9	4	3000	3000	2	-
3. Rope making	5	0	-	-	-	-	700	250	2	1
4. Carpentry	5	8	4000	2275	4	5	-	-	-	-
5. Blacksmithy	10	5	3960	2200	5	-	2250	1700	2	2
6. Shoe making	3	10	2970	2490	10	-	3625	2313	4	-
7. Cane crushing-	-	-	-	-	-	-	-	-	-	-
8. Agri. Imple- ments	8	0	-	-	-	-	6867	1900	2	1
9. Tikli	11	0	-	-	-	-	-	-	-	-
10 Weaving	9	1	2000	200	-	1	2067	1533	1	2
11 Oil Mills	1	5	7188	3738	5	1	-	-	-	-
TOTAL	66	44	4743	2736	38	13	3177	1962	20	6

Ballia : Borrowings above Rs.5000 by a unit : 1 in basketry, 3 in carpentry and 4 in oil milling.

Muzaffarnagar: 1 in agricultural implements.

Rate of Interest : 12% in most institutional loans and above 20% in all indigenous loans in both areas.  
 Repayment terms quarterly-half yearly instalments in most institutional loans; and no time fixed in most indigenous loans.



borrowed and in rope making, agricultural implements and plastic jewellery none borrowed. Amount of loan per unit was high in carpentry and blacksmithy (around Rs.4,000 per unit) and the highest in oil crushing (Rs.7,188); but very low at an average of Rs.366 in pottery. Indigenous sources of borrowing, at an interest rate of over 20 per cent, were used most often by enterprises in carpentry followed by those in basketry and pottery.

In Muzaffarnagar in no unit in carpentry and cane crushing resorted to borrowing, and the proportion of those borrowing was between one-third and one half in pottery, rope making, blacksmithy, shoe making and agricultural implements. The highest average borrowing per borrower unit was in agricultural implements (Rs.6,867) followed by shoe making and pottery, and the lowest by units in rope making (Rs.700). Most units borrowed from institutional sources. Indigenous sources of borrowing, at a very high rate of interest, were used by majority of blacksmithy and weaving units, and to a minor extent by rope making and agricultural implements units.

Credit is thus not used very widely by the rural industrial units in either area. It appears that the credit in the case of some units in traditional industries like basketry, rope making, carpentry, blacksmithy, shoe making and weaving has come to them in the form of assistance (loan combined with subsidy) under some government scheme such as the Integrated Rural Development, Special Component Programme (for Scheduled Castes), and other target-group oriented schemes and it is not clear whe-

ther borrowings are, therefore, related with the needs, potential and requirements of enterprises on a commercial basis. On the other hand, units in agricultural implements, cane crushing and oil crushing seem to have borrowed in accordance with their commercial production requirements, though mostly for meeting the needs of funds to purchase raw materials.

Credit needs of these units seem minimised as they purchase their raw material mostly on cash basis at a weekly or then, monthly interval. Units producing, gathering, or purchasing raw material from within the village constitute 35 per cent in Ballia and 43 per cent in Muzaffarnagar (Table 18). Such units are concentrated in activities such as pottery, basketry, rope making, cane crushing and oil crushing. The town, mostly the nearest one, is the single most important source of procurement of raw material in Ballia and equally important in local village in Muzaffarnagar. Industries mostly procuring raw material from the nearest town are carpentry, blacksmithy, agricultural implements, plastic jewellery, and weaving. Other rural areas contribute to the raw material supply of around 15 per cent units, mostly in shoe making, rope making and weaving. On the whole, 47 per cent of the units procure their raw material from the town, 15 per cent from other rural areas and 38 per cent from the same village where they are operating.

In Ballia, since raw material is most often procured from the town, traders have a large share in its supply : 55 per cent of the enterprises purchase their supplies from traders or agents;

Table 18 : Procurement of Raw Material - Location and Agents

Activity	BALLIA										MUZAFFARNAGAR									
	Location					Suppliers					Location					Suppliers				
	Same vill- age	Other vill- ages	Nearest town	House- holds (inc- luding self)	Others (in- clud- ing govt. agency)	Same vill- age	Other vill- ages	Nearest town	House- holds (in- clud- ing self)	Others (inc- luding govt. agency)	Same vill- age	Other vill- ages	Nearest town	House- holds (in- clud- ing self)	Others (inc- luding govt. agency)	Same vill- age	Other vill- ages	Nearest town	House- holds (in- clud- ing self)	Others (inc- luding govt. agency)
1. Pottery	14	-	-	14	-	15	-	-	15	-	-	-	-	15	-	-	-	-	-	-
2. Basketry	15	-	-	9	6	13	2	-	15	-	-	2	-	15	-	-	-	-	-	-
3. Rope making	2	3	-	5	-	10	2	-	12	-	-	2	-	12	-	-	-	-	-	-
4. Carpentry	1	3	9	-	13	2	2	8	-	12	-	2	8	-	12	-	-	-	-	-
5. Blacksmithy	-	-	15	-	15	-	-	15	-	15	-	-	15	-	15	-	-	-	-	-
6. Shoe making	-	8	5	8	-	-	5	5	5	5	-	5	5	5	5	-	-	-	-	-
7. Cane Crushing	-	-	-	-	-	7	-	-	7	-	-	-	-	7	-	-	-	-	-	-
8. Agri. Implements	-	-	8	-	8	-	-	9	-	9	-	-	9	-	9	-	-	-	-	-
9. <u>Tikli</u>	-	-	11	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10 Weaving	-	2	8	-	3	7	5	10	-	4	-	5	10	-	4	-	-	-	-	11
11 Oil Mills	6	-	-	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	38 (34.6)	16 (14.5)	56 (50.9)	37 (33.6)	13 (11.8)	47 (42.7)	16 (14.6)	47 (42.7)	54 (49.1)	45 (40.9)	11 (10.0)	-	-	-	-	-	-	-	-	-

(Figures in brackets are percentages to Ballia, Muzaffarnagar and total sample, respectively).

in Muzaffarnagar the proportion of such units is smaller at 41. Of the activities found in only one of the two regional samples, while cane crushing in Muzaffarnagar drawn its supplies from households in the same village, plastic jewellery and oil crushing in Ballia, both get their raw material from traders. In other activities the pattern is the same in the two districts, households as suppliers of raw material dominate in pottery, basketry, rope making and shoe making, and traders in carpentry, blacksmithy and agricultural implements. In weaving other sources, primarily the government agency like the Khadi and Handloom Boards are found to play a major role in supplying raw material.

In both samples together 39 per cent of the units use raw material produced or procured locally in the village, but 74 per cent of them are able to sell part or whole of their products locally (Table 19). Both in Ballia and Muzaffarnagar, a similar proportion (74%) of units sell part or whole of their products within the village. Those selling directly in the town constitute 48 per cent in Ballia and 37 per cent in Muzaffarnagar; and in other rural areas 23 per cent in Ballia and 10 per cent in Muzaffarnagar. As to their purchasers, 59 per cent of the units sell part or whole of their produce to households in Ballia, the proportion of such units is 75 per cent in Muzaffarnagar. Those selling to traders and agents constitute 46 per cent in Ballia and 34 per cent in Muzaffarnagar. Sale in the same village is predominant in pottery, rope making, carpentry, agricultural implements, plastic jewellery and oil crushing; and





most units in basketry, blacksmithy, shoe making and cane crushing sell in the nearest town. Most people in weaving deliver their products to some other village in the area where the office of the government agency concerned may be located. In terms of buyers, all units in pottery, basketry and rope making and most in carpentry, shoe making and oil crushing sell their products to households, while all units in plastic jewellery, most in blacksmithy and half of them in agricultural implements deal through the traders.

Thus though the pattern of sales in the two areas is similar, industrial activities is somewhat more oriented towards the local village market and household demand in Muzaffarnagar than in Ballia. This is evident from the fact that though in both areas around three-fourths of the units sell at least part of their product in the local village, but which in Ballia around one-third of them sell to the traders who in most cases would sell it outside the village, in Muzaffarnagar most (85%) of the sale in the village is to the households for their consumption and use. Units in Ballia find the town as a sale outlet for their product to a larger extent than those in Muzaffarnagar. With a higher level of agricultural development and rural incomes, Muzaffarnagar villages seem to be providing a better market for their local industrial goods and the units, therefore, concentrate on production for rural market : while in Ballia, faced with low demand from the rural areas with less developed agriculture and lower household incomes, units have to sell more often in the town and also orient their production in that

direction. It may, however, be noted that the differences in the pattern are not large enough to establish this proposition which could best be stated as a hypothesis.

But the differences in the mode of sale between the two areas does suggest that marketing of produce of rural units is relatively easier and less costly in an agriculturally prosperous area than in a backward one (Table 20). Many units adopt more than one mode of sale, but in Muzaffarnagar the largest

Table 20 : Mode of Sale

Activity	BALLIA			MUZAFFARNAGAR		
	Sale at produc- tion point	Vending and sto- cking with trader	Prior order	Sale at produc- tion point	Vend- ing and stock- ing with trader	Prior order
1. Pottery	5	12	1	12	6	2
2. Basketry	-	14	-	8	9	7
3. Rope making	1	3	-	3	3	5
4. Carpentry	11	-	14	13	5	6
5. Blacksmithy	2	6	10	8	-	7
6. Shoe making	4	9	3	10	3	-
7. Cane crushing	-	-	-	7	-	-
8. Agricultural Implements	8	-	2	9	-	-
9. <u>Tikli</u>	-	-	11	-	-	-
10. Weaving	-	-	10	15	5	12
11. Oil Mills	6	-	-	-	-	-
TOTAL	37 (33.6)	44 (40.0)	51 (46.4)	85 (77.3)	31 (28.2)	39 (35.5)

Figures in brackets are percentages to the respective samples. They do not added upto 100 due to multiple responses.

number of units, about 77 per cent find buyers for the entire or part produce at their door step. The percentage of such units in Ballia is only 34. More units in Ballia than in Muzaffarnagar produce on the basis of prior order, which may be an advantage in terms of assured market, but may also turn out to be disadvantageous in respect of the price and rejections.

Vending and stocking with traders as a mode of sale has definite disadvantages both in terms of costs, certainty of sale and terms of sale. And 40 per cent of the units in Ballia have to adopt this method as against 28 per cent in Muzaffarnagar.

#### vii) Problems and Prospects

The hypothesis of marketing as a problem in Ballia as suggested by above pattern of sales gets support from the responses we got from the entrepreneurs in respect of prospects and problems of their activity. In spite of generally better performance than in Ballia, almost half the entrepreneurs in Muzaffarnagar mainly in pottery, basketry, rope making and blacksmithy found no future prospects for their trade. On the other hand, only 13 per cent of entrepreneurs in Ballia, concentrated in pottery, basketry and oil crushing found their activity without prospects. It seems that the views, though consistent with inter-industry differences of industries in both the regions, have got greatly influenced in so far as the comparison between two regions is concerned, by the relative levels of development, opportunities and aspirations. Some activity giving relatively high income in Muzaffarnagar than in Ballia, may not be found

good enough by the entrepreneurs in Muzaffarnagar, in relation to other activities and possible alternatives in the same region. Of those who held that there are good prospects for their activity stated different conditions for the realisation of such prospects. Practically all the hopefuls in Muzaffarnagar considered financial assistance as a necessary condition for better working of their enterprises, 20 per cent of them would also ask for the assured supply of raw materials and 13 per cent for upgradation of technology. The conditions were multiple in more cases in Ballia, but only 29 per cent insisted on financial assistance as a condition. A good number (27%) thought upgradation of technology is important; but the largest proportion, 57 per cent, wanted assured supply of raw material. Marketing facility was considered to be important by 56 per cent of those who held good prospects for their enterprises in Ballia. This factor was less important in Muzaffarnagar where it was considered important only by 32 per cent of the optimists. Thus, it does look that marketing constraint is one of the most important factor in Ballia while in Muzaffarnagar it has not affected the entrepreneurs as much.

It may be noted that the various facilities and assistance suggested by the entrepreneurs are meant by them to be provided by the government. Even though there are various government schemes either aimed to benefit special groups like artisans, Scheduled Castes and others with very little assets; or, to support small, tiny and village industries, they do not seem to have reached the households running industrial units in the rural



areas, to any significant extent. Only 12 units, five in Ballia (2 in blacksmithy and 3 in weaving) and 7 in Muzaffarnagar (all cane crushing units) - have any nexus with the government in terms of having some kind of registration with an official agency. All registered units in Ballia have obtained, some financial assistance, from government agencies. Besides a few unregistered units in carpentry, agricultural implements and oil crushing have also received assistance, making a total of nine units out of the sample of 110 units in Ballia. Registration by cane crushing units in Muzaffarnagar seems more of a regulatory nature, as none of them have obtained any assistance from any official agency. But a total of 12 units in the rope making, blacksmithy, shoe making and agricultural implements have availed of official financial assistance. The proportion of units having obtained assistance from any government agency, thus is very small; 21 out of 220 units; that is, less than 10 per cent.

#### V. Concluding Observations

The description of the characteristics of rural industries in the different States of India, different regions and districts of Uttar Pradesh and more specifically in the two regions of the State, one with fast developing and the other with relatively slow growing agriculture, given in the earlier pages presents too variegated a pattern of emerging rural industrial structure and particularly of the relationship between agricultural development and rural industrialisation, to come to any



definite generalisations. Some general observations could, however, be made by way of hypotheses which seem plausible on the basis of information described above.

1. Major part of the rural industrial structure in most of the States and regions continues to consist of traditional industries catering to the local consumption needs and to the small production requirements of agriculture, carried out in the form of crafts based on artisan skills. In the past they were integrated with the rural social system as well as to the production system based on traditional technology and with little agricultural surplus for commercial processing. With the advent of new technology, relatively high levels of yield and output and increasing commercialisation in agriculture, most of these industries have come under stress of two kinds : first, their technology and size of operation are not capable of coping with the changing character and volume of manufacture of inputs and processing of agricultural produce. And secondly, the disintegration of the social system which provided them subsistence and economic security through a system of mutual obligations, have forced them to operate on the basis of economic calculus, which they find difficult to do due to paucity of resource base and competition from urban production. Yet, in the absence of any alternative, these activities continue, but most households carry them out as a means of subsistence, rather than as commercial proposition, particularly in the agriculturally less developed regions.

2. In the agriculturally better developed areas the overall structure is not very different, but two important phenomena have followed agricultural growth. One, processing of agricultural produce seems to be getting reduced in importance in rural areas, because of the larger volume to be processed, consideration of economies of scale and marketing are working in favour of shift of food processing activities more towards urban areas. And two, productivity and income levels of purchasing power with the local population and, in some industries, also due to the technological upgradation. A smaller proportion of industries processing agricultural produce in Punjab, Haryana, Gujarat, Rajasthan and Karnataka, States with fastest agricultural growth than in Bihar, West Bengal and Orissa, with slow growth of agriculture suggests the trend of the first kind. And high net income per household worker in Punjab, Haryana, and Gujarat, on the one hand, and higher income in traditional industries like pottery, basketry, shoe making and blacksmithy in Muzaffarnagar than in Ballia suggest the phenomenon of the second kind.

3. Rapid agricultural growth has also led to some marginal alteration in the rural industrial structure, by the addition of certain new industries processing of produce where transporting to distant urban area may pose a problem, and serving the requirements of new agricultural technology. Coming up of new cane crushing units in Muzaffarnagar and a large complement of units in the manufacture and particularly repair of machinery, tools and implements in rural areas of Punjab suggest these

tendencies. The new units of these kinds, however, seem to have come up primarily as avenues of investment of agricultural surplus, as suggested by evidence from Muzaffarnagar where practically all the households going into cane crushing business are large farmers owning over five hectares of irrigated land. Similarly, a few relatively large farmers also seem to have invested in blacksmithy making it technologically suitable to the new demands, and raising its productivity to one of the highest among rural industries in some areas. It, therefore, seems that fast agricultural growth can also stimulate rural industrialisation through surplus that may get invested locally if suitable opportunities exist.

4. Technology, irrespective of levels of agricultural development, makes an independent impact on the performance of rural industries. Therefore, units in Assam, Gujarat, Haryana, Punjab and Uttar Pradesh with relatively higher levels of fixed capital per unit and those in Tamil Nadu with a relatively high use of electric power generate the highest value added and income per worker among all the States. Similar evidence is reported to a certain extent from the study in Uttar Pradesh, where in the same industry, the differences in the performance of the units between the two areas are found to be in accordance with the value of fixed capital and use of power. Carpentry, and agricultural implements units in Ballia have much higher productivity than those in Muzaffarnagar, and shoe making units have similar difference in the reverse direction presumably, for the

same reason. As among industries, the relationship seems to hold to a much larger extent : most industries with a high value of fixed capital per unit also have high productivity, and those with little use of fixed capital have low productivity.

5. Differential performance of rural industries among States and regions does not seem to arise so much from the differences in the composition of industries as from certain specific characteristics of the regions, so that the same industry has significantly different performance in different States and areas. It is where the relationship between agricultural development and rural industrial sector emerges meaningful. Performance of rural industrial sector in different States is found to be broadly related with the levels of agricultural productivity, and more closely with the growth rate of agricultural output. The relationship, however, is direct in terms of input-supplying and output-using linkages only to a limited extent. Mostly, the relationship seems to be rather indirect, through rise in income levels, purchasing power and also, to some extent, investible surplus generated by agricultural growth giving a general fillip to the existing industries and partly leading to the emergence of new dynamic ones. That is why the rural industrial structure of even of the agriculturally better developed and fast growing regions is not necessarily dominated by agro-based industries or industries producing and repairing agricultural implements; but, like that of the less developed States,

mostly by textile-based, forest-based and, to a lesser extent, by agro-based units - all traditional industries ubiquitously found in all regions.

6. The difference between the faster growing agricultural areas and others is primarily in terms of the productivity and income levels in rural industries, and, only marginally in terms of the composition of industrial products. Slow growing agriculture not only fails to introduce any structural changes in rural industries (except in terms of accidental emergence of some consumer products like plastic jewellery in Ballia district, unrelated with the rural or agricultural system), but also tends to keep those engaged in rural industries at a subsistence level of productivity and income. This is the kind of situation we find in the State like Uttar Pradesh, with only a moderate growth of agriculture. But then even in that State in the fast growing Western districts like Muzaffarnagar, rural industries of various kinds seem to have crossed over the subsistence level of income, no significant addition (except some units in cane crushing) of any new lines of production has taken place. It can be said that agricultural growth of a high order, as obtained in Punjab, could alone lead to any significant structural changes in rural industries.

7. But even the agricultural development of the moderate order and a growth rate of around 3 to 4 per cent in output, as was obtained in Western Uttar Pradesh during the last three decades, has led to certain significant changes in the function-



ing of rural industries, even of the traditional varieties. First, a much larger proportion of households engaged in them, than in a slow growing area like Eastern Uttar Pradesh, carry on these activities as their sole or main occupation, presumably because it provides them reasonable income, whereas in the case of low agricultural growth like Eastern Uttar Pradesh, industrial units do not provide sufficient income and, therefore, quite a few members of the industrial households have to look for other sources of employment and income. More households running industrial units as their main occupation in Muzaffarnagar than in Ballia, yet deriving smaller proportion of the household income from them, reflects mainly the higher levels household incomes (from all sources) in Muzaffarnagar than in Ballia. Though net income of a household from the industrial activity is on an average only 37 per cent higher in Muzaffarnagar than in Ballia, the total household income in the former is 75 per cent higher than in the latter district. Second, in agriculturally better developed area, use of hired labour, at reasonably high wage rates, is of a higher extent and increasing much faster than in less developed area, thus signifying a greater entrenchment of economic calculus and emergence of the non-household, capitalist mode rather than the household subsistence mode of production. Third, dependence on town and traders as suppliers of raw material and as buyers of the products is less in the agriculturally developed area than in the backward area; thus the production is more rural-oriented in the former. The marketing is easier in a developed area as a

large majority of units are able to sell their products at the production point itself while in the less developed area almost one half of the units have to go to the nearest town for sale of their products. A higher purchasing power with the local rural population makes it possible for industrial units in the developed area also to find a larger proportion of their buyers from amongst the local households than the units in the agriculturally less developed area. For all these reasons, neither marketing nor procurement of raw material is considered a major problem by entrepreneurs in the former while these are considered to be the major constraints in their growth by units in the latter.

8. Growth of output and its pattern among different industries, however, does not differ significantly<sup>6</sup> between the two agricultural situations; in fact, the overall growth is found to be somewhat higher in the less developed area due to very high increase in output in a few industries. Otherwise, the traditional village industries like pottery, basketry and rope making has experienced a decline or small growth in both the areas; but other traditional industries like blacksmithy and shoe making have had high growth in output in both areas. But weaving and carpentry units had a high growth in the less developed, but low growth in the more developed agricultural situation. New industries specific to one of the areas, cane crushing in developed and oil milling and plastic jewellery in the less developed area, experienced relatively fast growth

in output. In terms of future prospects, most entrepreneurs, particularly in the traditional village industries in the developed region, had a negative view of them, presumably because the average incomes from most of these activities even though relatively higher than in the other region, were still lower than earnings in other sectors in the region. On the other hand, a rather optimistic outlook of most entrepreneurs in the less developed region, even in the traditional industries having faced a decline in output, presumably reflects low level of their aspirations in the context of generally low income levels and very little alternative opportunities.

The hypothesis that agricultural growth by itself leads to industrialisation of rural areas both in terms of diversification and improved performance thus seems only partially validated in the Indian case. Higher incomes generated by agricultural growth is found to facilitate an improvement in the situation of some rural industrial activities producing goods of general use and capable of adapting to new pattern of demand, but the larger volume of agricultural produce available for processing tends to shift the processing industries to town. Such of the activities which use weight loosing material like sugarcane have, however, a tendency to get located in the rural areas. Input supplying and servicing activities like manufacture and repair of agricultural implements are also likely to develop in rural areas with rapid agricultural growth.

Rural industrialisation, therefore, needs to be viewed not merely as an adjunct to the agricultural growth, but as an independent element of the strategy for rural development, particularly for generating employment and income for the non-agricultural population. It would have to be seen in a perspective wider than that limits it to the needs of and opportunities provided by agricultural growth. In that sense, it has to be a part of the policy and strategy of industrialisation in general, and location and diversification of industries in particular, and not merely a programme of protection and promotion of village and agricultural related industries.

VKAA: